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IBM Case Manager 5.2 Solution Deployment Guide Part 2

Advanced Solution Migration and Deployment

Abstract

This guide, presented as a series of articles, focuses on the steps and tools used to migrate and deploy an IBM Case Manager solution from one environment to another. It is intended to augment the information available in the IBM Case Manager and FileNet P8 Information Centers. Throughout this guide, links are provided to Information Center topics. Review of the topics is strongly recommended.

The first article in this series, *Part 1: Basic Solution Migration and Deployment* , provides an overview of the entire solution migration and deployment process as well as procedures for migrating a solution with only IBM Case Manager assets. Also in the Part 1 appendix is a quick reference checklist for the entire process as presented by all the articles in the complete Solution Deployment Guide.

The second article, *Part 2: Advanced Solution Migration and Deployment* , builds upon Part 1 to encompass the larger solution application including other FileNet assets.

The final article, *Part 3: Selected External Assets Migration and Deployment*, uses the solution application migration and deployment model outlined in the first and second articles but illustrates by example how two of the other IBM and external assets are managed.

Revision 1.0

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Overview

Migration and Deployment Overview

Introduction

The first article in this series, *Part 1: Basic Solution Deployment and Migration*, provides an overview of the entire solution migration and deployment process as well as procedures for migrating a solution with only IBM Case Manager assets. This second article, *Part 2: Advanced Solution Deployment and Migration*, builds upon Part 1 to encompass the larger solution application including other FileNet assets. The reader is required to review Part 1 prior to reading Part 2 and should have Part 1 available for easy reference.

The following graphic illustrates the overall migration and deployment process at a high-level. This reflects migrating and deploying from a development environment to a non-development environment using a variety of tools including: IBM Case Manager administration client, FileNet Deployment Manager, and Process Configuration Console. The numbered bubbles reflect a typical order of operation. The series and order of steps can vary depending on what the solution application contains. For example,

- As presented in Part 1 steps 1, 2, 6, 7, 10, and 11 are required.

- Step 10 could be before step 8 if there is external dependency in the FileNet Deployment Manager deploy package which requires the solution to be deployed before the deploy package contents can be imported .

- Steps 4 and 8 might be needed multiple times at different points in the migration and deployment process depending on how the other FileNet assets are related to the solution and to each other.
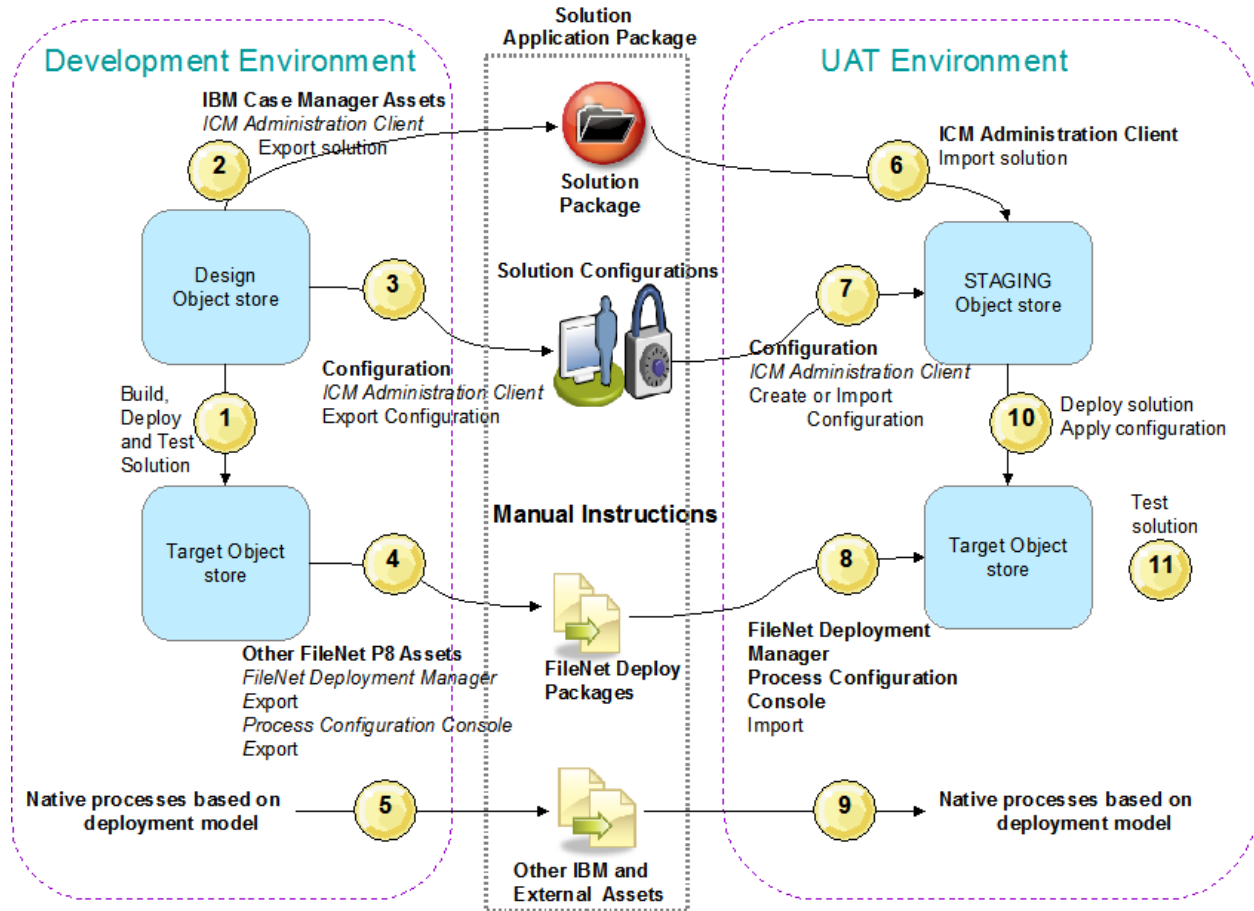
Figure 1 High-level process: solution application migration DEV to UAT

IBM Case Manager Solution Deployment Guide Part 2: Advanced Solution Deployment and Migration expands upon how the traditional application and solution application migration models can be used together to support the migration and deployment of a solution application. This article, covering steps 4 and 8, describes the additional tasks needed to migrate other FileNet assets that might be integrated into the solution application.

Solution application migration model

As described in Part 1 of this series, the IBM Case Manager solution migration model treats the development environment as the "single source" for the core solution application. Migration of IBM Case Manager assets always begins in the development environment.

Depending on the circumstances, some FileNet assets used in a solution might originate in the user acceptance test or production environments following a traditional P8 application migration model. Recall from Part 1 of this series, assets in the traditional FileNet application migration model move directly through each of the environments with the last migration being

from user acceptance test to production. And changes made to the application in the testing environments might be migrated back to the development environment.

For an IBM Case Manager solution, the assets that could migrate into the development environment include content engine metadata (property templates, document classes, or choice lists) already existing in the enterprise that is reused when designing a new solution. Another example is Content Platform Engine Workflow System assets defined outside of IBM Case Manager that are incorporated into the solution, such as a workflow system configuration or component queue.

Thus the migration of a complete solution application can utilize both models. This next figure shows the hybrid approach as a graphical representation.
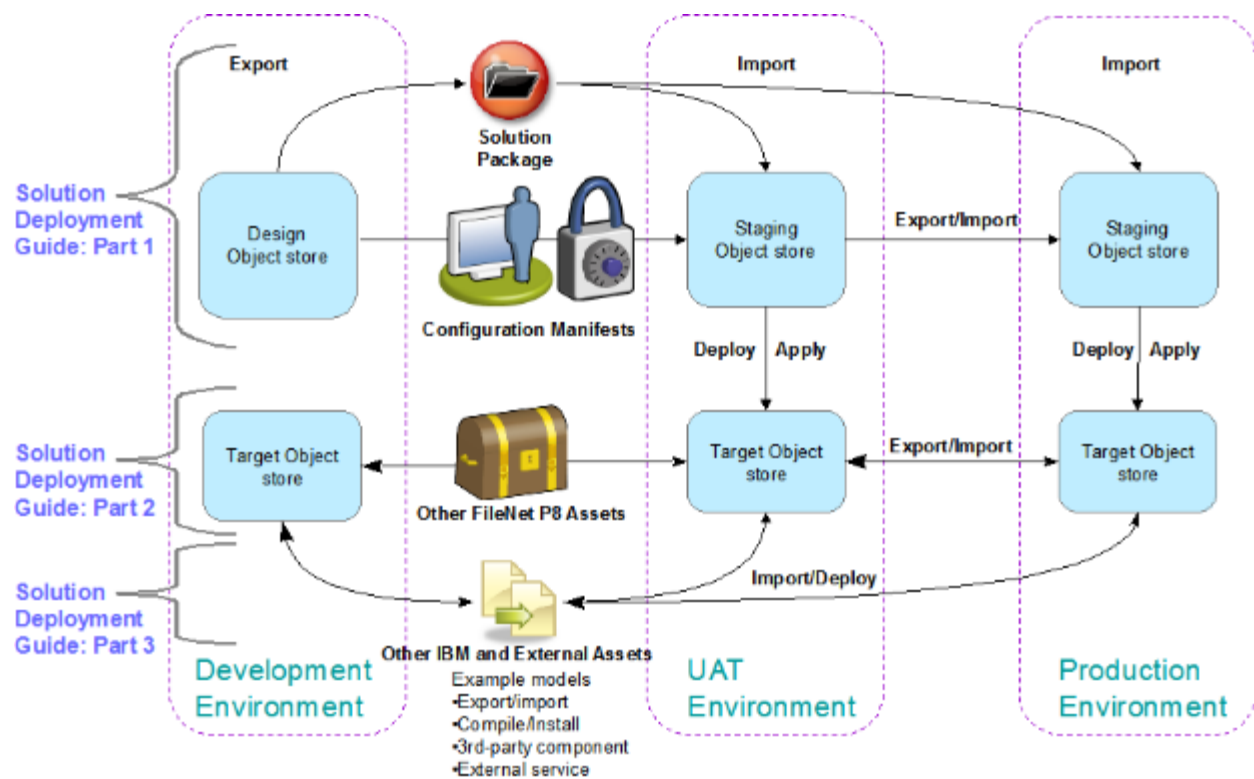
Figure 2 Advanced solution application migration

The remainder of this article presents one method using the IBM FileNet P8 tools to migrate other FileNet assets associated with a solution application from development and deploy them into a test or production environment. Discussion of the migration of FileNet assets from a test or production environment back to development can be found in the topic "Deploy changes to an existing application" of the FileNet P8 Information Center.

Ensuring object identifier stability

Key to consistency of assets as they migrate between environments is keeping a constant and unique identification. In the Content Platform Engine, for P8 domain or object store objects, unique identification is accomplished using an object identifier, or GUID (Global Unique IDentifier). A GUID is a 128-bit data identifier used to distinguish objects from each other. If there is a need to merge objects from multiple object stores into a common object store, GUIDs ensure objects maintain their uniqueness and do not collide with each other in the common object store.

GUIDs also reduce the complexity of inter-object relationships by providing a well-managed reference value. With the GUID as a reference value, objects and their dependent objects can be quickly and reliably located within the object store in which they reside.

For workflow system objects, such as a queue, application space, or transferred workflow, identification is by name. During an import, if the object has the same name as one that already exists in the system, it is considered to be the same element.

When moving objects between multiple environments, you must consider dependencies. Objects are often dependent on other objects in the object store, the workflow system, or on external resources, for example:

> A workflow definition that contains references to attachments (document or folder). Those attachments must exist in the specified object store in the destination environment by the time the workflow definition is imported.

> An application's stored search definition is an XML document in an object store. The XML content references object stores by name and ID. This type of dependency is automatically handled by FileNet Deployment Manager.

> A document references an external website that contains its content. This type of dependency has to be maintained manually.

The extra effort of maintaining the dependencies in the destination environment can be reduced by following the pattern of having stable GUIDs. Not following the stable GUID pattern might require additional deployment logic.

As an example, there are two options to deploy a search template that has a dependency on a folder structure.

> The first option follows the practice of using stable GUIDs. FileNet Deployment Manager or a FileNet Content Manager addOn is used to import the folder with the same GUID leading to no additional corrections deploying the search template.

> The second option creates a new folder in the destination object store letting the system generate a new GUID. This creates a situation where the search template must be manually changed to refer to the newly created folder.

Some assets, such as the IBM Case Manager Form and Content List widgets, or IBM Forms and FileNet P8 eForms form templates, require the original design tools to manually fix-up a dependent reference. In this situation, since the design tools are not available in a non-development environment, use of stable GUIDs across all environments is mandatory. FileNet Deployment Manager is used to migrate assets, and their object identifiers, between environments ensuring stable GUIDs.

Source and destination environment compatibility

Inherent to preparing to migrate any FileNet based application between environments is ensuring the source and destination object stores are compatible. This includes:

- Ensuring addOns which define classes or properties in the destination object store (target environment) are the same as in the source object store (project area or target environment).

    Note Be sure to consider addOns that modify the metadata for the default Document Class Definition. Any document stored in the Document Class or a subclass of the Document Class will be affected by that modification even if the document is not used by the product that installed the addOn. For example, if the IBM Case Manager target object store in the development environment is also configured to be an IBM Enterprise Records records object store, a document like an IBM Forms form template that is not intended to be managed as a record will still have the additional IBM Enterprise Records properties when it is exported. If that form template is imported into a target environment that does not have the addOn for a records object store applied, an import error can occur.

- Considering the release levels of the software and deployment tools used. Deployment tools such as IBM Case Manager administration client and FileNet Deployment Manager should be at the same release level as the server they are connecting to. The release level of the IBM FileNet products in the source environment should be the same as the products in the destination environment to avoid issues during import.

- Verifying all content to be deployed is checked in prior to starting the import process.

- Planning the corresponding administrative groups in the source and destination environments. The mapping between security principals in the source and destination is a task performed in the *migrate* phase described later.

- Ensuring any services required by the solution application will be available when the solution and associated additional assets are deployed.

For more information, see the FileNet P8 5.2 Information Center topic "About deploying to the Content Platform Engine server".

Preparing the destination environment can be an iterative process if complex dependencies between assets are present. The FileNet Deployment Manager change impact analysis

operation (also called *analyze*) described later in this article reports on potential import errors in the destination environment and the impact of the changes on the destination environment.

The information in the change impact report should be examined to identify addOns or configurations missing from the destination environment, and missing required or unexpected items present in the converted deploy dataset. These issues must be corrected before the deployment can proceed. Corrective actions might include:

- Installing and configuring third-party components the solution application depends on.

- Re-exporting the assets from the source with a more focused set of include options to ensure the deploy dataset contains only the desired assets plus all required assets to support them. See the IBM Case Manager 5.2 topic "FileNet Deployment Manager include options for assets".

For more information, see the FileNet P8 5.2 Information Center topic "About change impact analysis".

Phase 1

Prepare

Identify and document additional solution application assets

During the solution design and development phase, it is important to create and maintain a listing of all assets in the entire solution application. As a part of this, information to assist in the migration and deployment process for the assets must be included.

> **Note:**
>
> For an overview of assets related to the solution package, review the IBM Case Manager 5.2 Information Center topic "Identifying solution assets for migration".
>
> For a comprehensive discussion of migration and deployment instructions preparation, review the IBM Case Manager 5.2 Information Center topic "Preparing customized migration and deployment instructions".

For details about each type of asset migrated using FileNet Deployment Manager, see "FileNet P8 assets" in the IBM FileNet P8 5.2 Information Center.

The remainder of this article assumes the reader has reviewed and is familiar with the concepts and terms introduced by these topics as well as Part 1 of this series.

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The first article in this series, Part 1: Basic Solution Migration and Deployment, talked about the migration of IBM Case Manager assets. Another category of assets is called *other FileNet P8 assets*. This term refers to assets stored in the Content Platform Engine and managed by FileNet P8 tools other than IBM Case Manager. The following table shows examples of which assets are other FileNet P8 assets by listing the well-known ones.

The following table contains information on:

> Type: Short description or name of asset
> Defined using: Tool used to design the asset
> Resides in: Where the asset used in the solution deployment is kept in the development environment, for example the Design Object Store (DOS) or the object store for the Case Manager target environment (Target Object Store, TOS).

Migration tool: Used to export/import the asset to move between environments.
Deployment tool: Used to deploy the asset into the target environment.

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Type	Defined by using	Resides in	Migration tool	Deployment tool
Reused Content Engine classes and properties	Administration Console for Content Platform Engine	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
Reused queues and component queues	Process Configuration Console	Target object store	Process Configuration Console and FileNet Deployment Manager	Process Configuration Console
Content Engine marking sets	Administration Console for Content Platform Engine	FileNet P8 domain	FileNet Deployment Manager	FileNet Deployment Manager
Content Engine event subscription	Administration Console for Content Platform Engine	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
Content Engine code module	Administration Console for Content Platform Engine	Target object store	FileNet Deployment Manager	FileNet Deployment Manager

Type	Defined by using	Resides in	Migration tool	Deployment tool
Content Engine event workflow definition	Process Designer	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
IBM FileNet eForms for P8 form template	IBM FileNet eForms for P8 designer	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
IBM Forms form template	IBM Forms designer	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
Workplace XT or IBM Content Navigator search stored in the FileNet P8 repository	Workplace XT or IBM Content Navigator	Target object store	FileNet Deployment Manager	FileNet Deployment Manager
Search templates	Search Designer	Target object store	FileNet Deployment Manager	FileNet Deployment Manager

Figure 3 Well-known other FileNet P8 assets

Information that should be collected about these other FileNet P8 assets includes:

Object dependencies -

A dependency exists between two objects when one object references the other. When such objects are imported, the object that is referenced must exist in the object store before the object that references that object is imported.

For dependent relationships defined by a FileNet P8 application, FileNet Deployment Manager understands the dependencies and ensures that the objects are imported in the correct sequence.

Folder references – Path-based or GUID-based

Some operations in FileNet Deployment Manager use path-based rather than GUID-based references to folders. Path-based references are used to reference the folders parent folder, the security folder of an object, the containing folder in a Referential Containment Relationship (RCR), or a folder in a system or user-defined property. Migration of these assets must be preceded by the creation or import of the correct folder hierarchy.

GUID-based are often used by other components whose metadata directly reference a folder such as an entry template. Migration of these assets should include the folder that is referenced to ensure stable GUIDs.

addOns utilized -

> If you have objects that require an addOn on the source, that addOn must be installed on the destination in order for FileNet Deployment Manager to import the dependent objects.

Source and destination environment-specific information -

> The object store in the destination environment that corresponds to a specific object store in the source environment.

> The user or group in the destination environment that will be assigned the access privileges of a specific principal in the source environment.

> The service data in the destination environment that corresponds to specific service data in the source environment.

System configuration instructions -

> System configuration steps required to complete deployment of the assets. For example, JAAS credentials to access the application server or database login information to complete a database connection specification often differs between environments.

The tasks in this article will focus on two asset types from the above table by using examples from a sample solution application:

- An IBM Forms form template stored as a document in the IBM FileNet Content Platform Engine. The form is used to customize the work details page. The form template is stored in the source target object store (either the project area in a development environment or the target environment in a test environment).

- A component queue managed by the workflow system component of the IBM FileNet Content Platform Engine. In the sample solution application, a component queue named CEopsExtended processes requests from the solution application to identify what type of document was attached to the case by retrieving the document class name from the FileNet Content Manager. Migration of the component queue will include migration of the code module referred to by the component's Java adaptor.

The techniques shown for those two asset types can be generally applied to any asset managed by the Content Manager and Workflow System components of the IBM FileNet Content Platform Engine and migrated using FileNet Deployment Manager and Process Configuration Console respectively.

Perform one-time configuration and setup tasks

When an application is migrated and deployed into a system for the first time, steps beyond the migrate and deploy are often required to configure it in the new target environment. This is also

true for an application built around an IBM Case Manager solution. These additional steps will be referred to collectively as *system configuration*.

At application/solution redeployment, system configuration information may be overwritten during the redeployment process and may need re-specification. However most configuration steps should not need repeating.

The types of system configuration tasks and their procedures are specific to the solution application and its environment. These procedures will not be discussed in this guide. However IBM FileNet tools used to migrate a solution application do have some setup tasks that are described in the following sections. Some of these tasks help to facilitate migration when the environments are disconnected.

A deployment can be between connected or disconnected environments.

> *Connected* - one IBM Case Manager administration client or FileNet Deployment Manager instance is able to access the source and destination at the same time and performs both export and import.

> *Disconnected* – Separate instances of the IBM Case Manager administration client or FileNet Deployment Manager perform the export and then the import. Example is where environments are separated by firewalls or the solution application is developed externally.

A deployment tree contains the files that FileNet Deployment Manager creates. If the environments are disconnected and more than one instance of FileNet Deployment Manager is used, then more than one deployment tree must be created. If the deployment is connected, only one deployment tree is needed.

As another feature to facilitate a disconnected deployment, FileNet Deployment Manager can create a zip 'Deploy Package' which is easier to move between systems. This package contains the information about the source environment that will be needed to import the assets into the destination environment. If the systems are disconnected, the source environment is typically extracted from the deploy package into the deployment tree for the FileNet Deployment Manager performing the import on the destination.

◆ For additional details about the structure and content of a deployment tree, please see "Concepts: About FileNet Deployment Manager" in the IBM FileNet P8 Information Center.

Task – Create FileNet Deployment Manager deployment tree

If more than one FileNet Deployment Manager instance will be used to perform the export, import and deploy, then a deployment tree must be created for each FileNet Deployment Manager instance that will be used. The examples in this article implement a disconnected deployment between distinct FileNet P8 Content Platform Engine domains.

The Deployment Tree data should be placed where it can be properly shared, managed, and backed-up. The default location is typically not the best choice. Depending on the situation, the FileNet Deployment Manager environments and the data they contain could be leveraged by multiple solution administrators for use with multiple environments saving time and providing a degree of consistency.

On many versions of the Windows operating system, the Program Files and Program Files (x86) directories are protected, and applications cannot write to them unless explicitly run as administrator. The default location for the Deployment Tree is the FileNet Deployment Manager installation directory which is typically one of those two protected directories. As a consequence of not running as administrator, the Deployment Tree data may be physically located in Windows VirtualStore. For example, C:\Users\<*username*>\AppData\Local\VirtualStore\Program Files (x86)\IBM\FileNet\ContentEngine\tools\deploy\P8DeploymentData.

Step	Action
1	Select **All Programs > IBM FileNet P8 Platform > FileNet Deployment Manager** to open the Deployment Manager
2	On the **Select Deployment Tree Location** dialog, use the **Browse** button to select the desired location in the file system.
3	The main FileNet Deployment Manager dialog will appear. Click **Window > Preferences**
4	Review the **General** options. – Optionally deselect **Enable FIPS 140-ready mode** to allow FileNet Deployment Manager to store supplied passwords as encrypted data on disk. If option is selected, you will be prompted for passwords each time FileNet Deployment Manager is run. Additionally disabling this option allows FileNet Deployment Manager to convert embedded passwords for certain service data in a deploy dataset provided you also enter new passwords for the target service data as a part of the data mapping task. For details, see "About passwords" in the IBM FileNet P8 Information Center. – Set the option **Export metadata assets created by an addOn** to **Never**. By choosing the option to never export metadata created with an addOn, the best practice is followed of introducing metadata extensions from addOns to the non-development environment using the same methods as used when the metadata was originally added to the development environment. For example, if a solution is integrated with a third-party product that also uses the FileNet Content Platform Engine, by installing the product into the non-development environment and applying the addOn to the target object store as directed by the product documentation, the setup and configuration of that third-party product will be correct. If the metadata is migrated by FileNet Deployment

Step	Action

Manager, some important configuration step might be missed causing issues when the solution is deployed or run.

This approach also assumes the metadata introduced by an addOn is maintained in both environments so they continue to be the same. Modification of the metadata in one environment and not the other could lead to inconsistencies on deployment and possible import failures.

☐
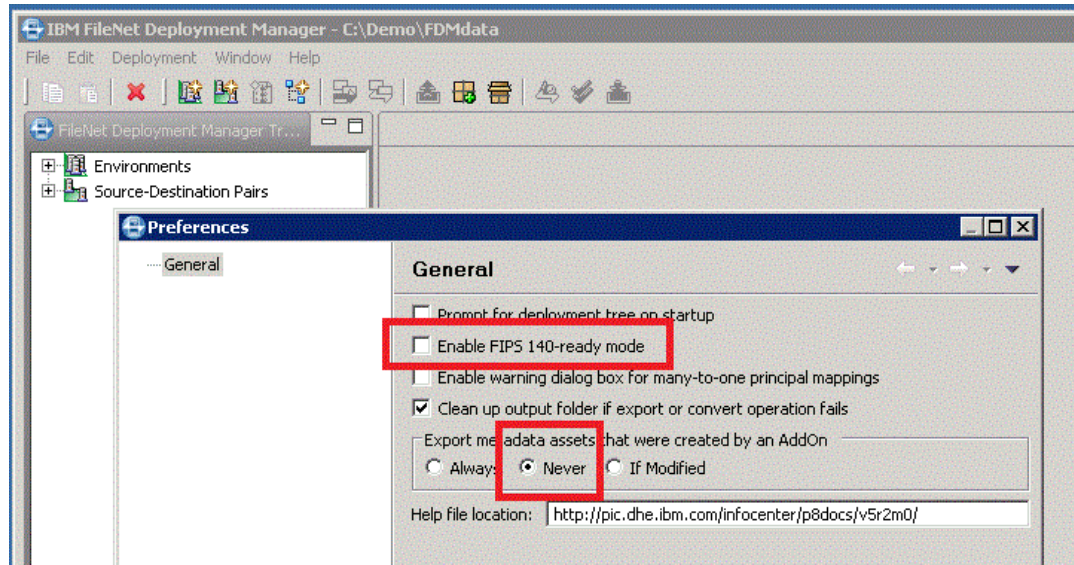
5	Click **OK** to save any changes.

Task – Create FileNet Deployment Manager environment

This task is used to create environments in FileNet Deployment Manager to enable the tool to connect to a given IBM FileNet Content Platform Engine environment. You must create an environment definition for each of the development and test/production environments involved in the solution application migration. As part of this definition, you provide the configuration information the tool needs to connect to the environment including the PE connection point referencing the project area or target environment used as the source or destination of the migration.

An environment can serve as the source environment in one operation and the destination environment in another. Thus this task does not distinguish between source and destination environment and only describes how to create an environment. The environment's inclusion in a source-destination pair later determines the role it plays at a given moment.

For an overview of the entire process and additional details about choices and options, please see "Checklist: Environment definitions" in the IBM FileNet P8 Information Center.

The basic data from an environment is gathered and stored in the deployment tree so it can be used in the deployment of assets. That data is stored into *half maps* that are created to keep the following information about an environment:
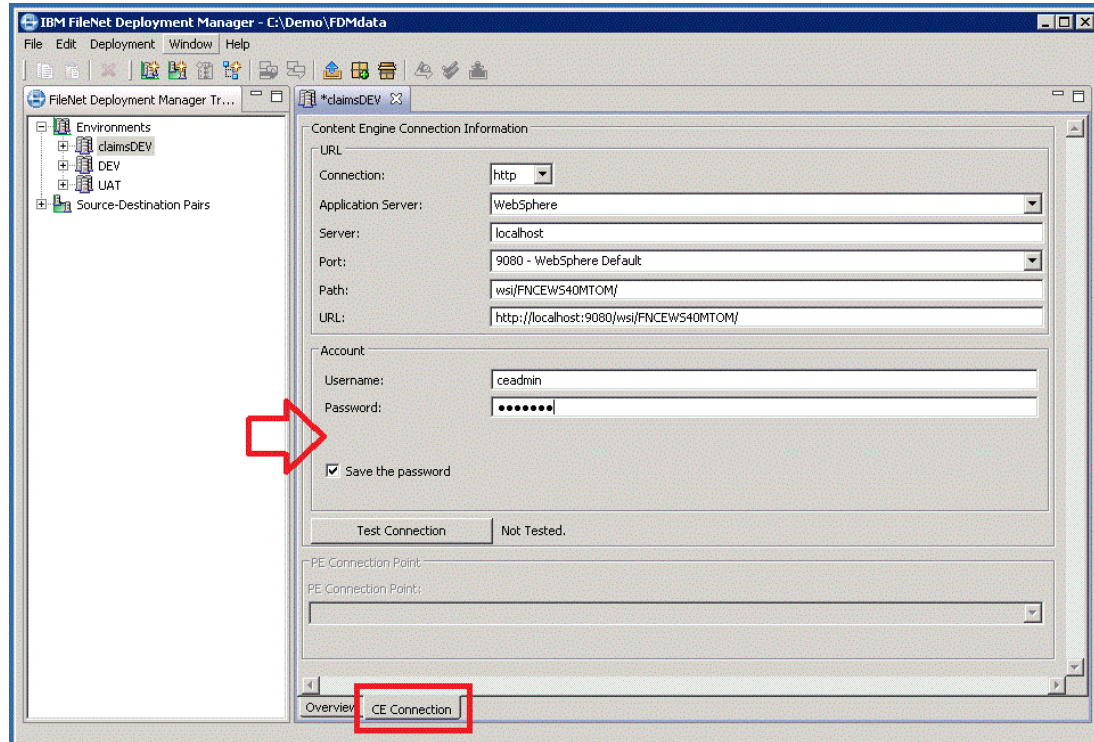
- Object stores
- Storage policies
- Storage areas
- Security principals
- Services (extracted from exported assets and includes a variety of information such as: URLs referenced from widgets used in solutions or workflow definitions, database connection information, user eMail addresses, WebServices referenced from IBM Forms or eForms forms, etc.).

Step	Action
1	Select **All Programs > IBM FileNet P8 Platform > FileNet Deployment Manager** to open the Deployment Manager.
2	On the **Select Deployment Tree Location** dialog, if the desired tree is not selected by default, use the **Browse** button to locate or create the desired tree.
3	Click **OK** to open the tree.
4	Click **File > New > Environment**
5	On the **Create a new environment** dialog, enter the environment name, claimsDEV in this example**.** The name of the environment should be chosen to allow for quick recognition of its relation to the business. Do not use a name representing its role in the migration process such as 'source' or 'destination' since the environment may play different roles at different times. A logical choice would be the same name as assigned to the IBM Case Manager project area or target environment definition for the environment the assets are being migrated from or to. Click **Finish.** Observe the addition of the node c**laimsDEV** in the deployment tree.
6	Select the c**laimsDEV** node. Use **File > Open** to open the environment.
7	Switch to **CE Connection** tab (at the bottom). Enter the information needed to connect to the Content Platform Engine. Optionally use the **Save the password** option to store the encrypted password to disk. (The

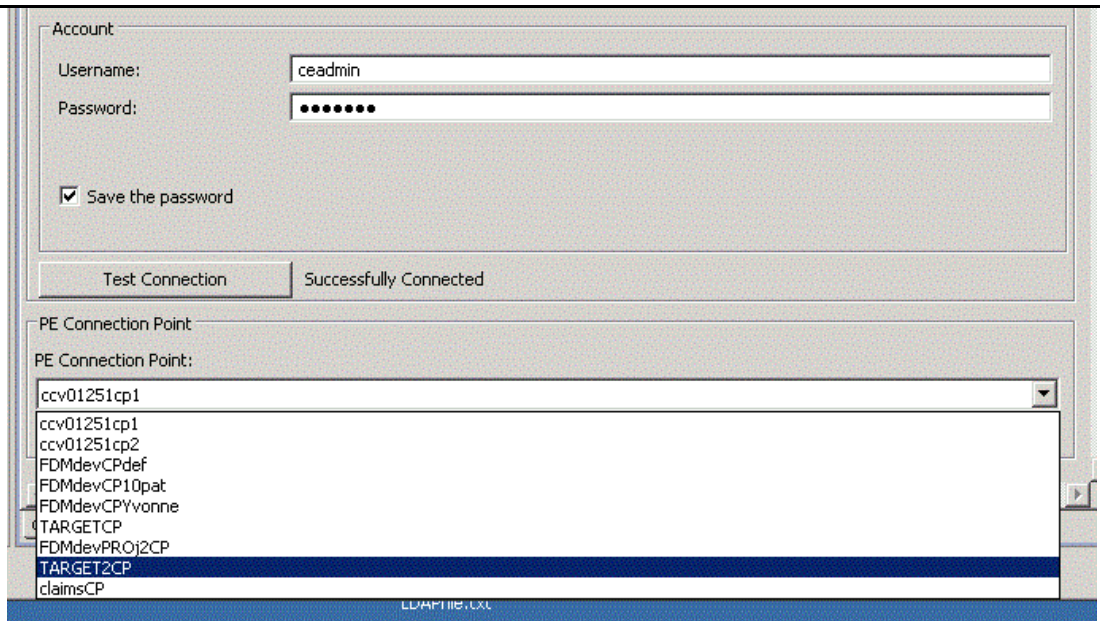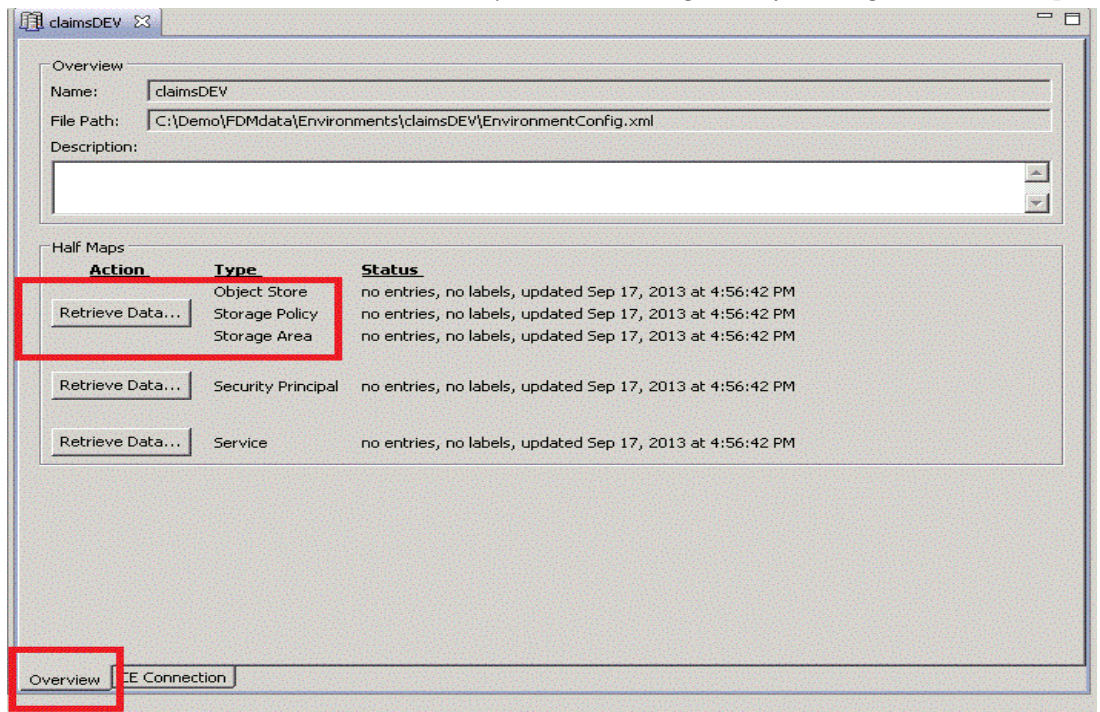| Step	Action
	option will not be available if the preference for Enable FIPS 140-ready mode was not previously disabled.) If the option is available, enter the password now.
8	Click **Test Connection** to verify the connection to the Content Platform Engine and populate the **PE Connection Point** drop down. If the **Save the password** option was not chosen, enter the password now when prompted. If **Test Connection** fails, verify all Content Platform Engine connection information entered as the failure might be due to an incorrect hostname, port number, or user credentials.
9	Use the **PE Connection Point** drop down to select the connection point that corresponds to the project area or target environment this FileNet Deployment Manager environment will be used with.

Step	Action

10	Click **File > Save**

11	Switch back to the **Overview** tab (at the bottom).

Click the **Retrieve Data** button for the Object Store/Storage Policy/Storage Area half map.

Step	Action
12	Select the Options and Mode you wish to use. Typically the default selections are appropriate. For more information see "Extract an object store half map" in the IBM FileNet P8 Information Center.
	Click **OK** to start the retrieval.
	Click **OK** on the completion dialog.
13	Nothing more will be done with the environment at this time. Later tasks will populate the environment with the data for the security principal and service half maps.

Phase 2

Migrate

Export from source environment

Using information from the solution migration and deployment instructions, you will prepare a FileNet Deployment Manager deploy package and Process Configuration Console export configuration file. To ensure a consistent version of the application is packaged, freeze development activities for the application to be migrated while the assets are being exported.

The 'freeze' is accomplished by coordination between the users in the development environment and the administrator performing the export. Project planning and procedures should include how such a freeze will be communicated.

Part 1 of the Solution Deployment Guide series of articles describes the specific processes for using the IBM Case Manager tools to perform the basic solution migration and deployment. This second developerWorks article describes the specific processes for using the FileNet tools for exporting and importing other FileNet P8 assets. For all the articles in this series, any task described as occurring during the export portion of the *migrate* phase is performed during the same time period.

As a best practice, the exported assets originally used to migrate the solution application for testing are used again to migrate the solution application to the production environment. This ensures the integrity of the application that is migrated to the production environment.

The remaining sections of this article describe the specific processes to export and import other FileNet P8 assets using FileNet Deployment Manager and the Process Configuration Console, and perform required post-deployment configuration changes to support the imported P8 assets used for the example in this guide.

Task 4a – Export FileNet workflow system configuration

Export the required Content Platform Engine Workflow System assets from the target object store in the project area of the development environment where the solution application was created and tested. Required Workflow System assets are those created with the Process Configuration Console or Process Designer and not directly in Case Manager Builder. These assets are not managed by IBM Case Manager, but the solution might directly incorporate them. Or the business processes that are part of your solution application might use these assets. Examples of these assets include: component queues or workflow system configuration parameters.

Use the Process Configuration Console from within IBM Administration console for Content Platform Engine to export Workflow System assets from the development environment target object store to the test/production environment target object store.

Complete the export with the following in mind:

a) Only select assets created with tools other than Case Manager Builder. Direct migration of assets such as work queues or event logs that will be created by the solution deploy operation can cause conflicts. Assets managed by IBM Case Manager can often be recognized by the presence of the solution prefix in their name or by their name being the same as the solution name.

b) Use the **Include System Properties** option to export workflow system configuration information. Note that some configuration information is environment specific and may need to be edited using Process Configuration Console on the destination system once the solution application is deployed.

c) If you are exporting only System Properties, select **Export selected components** under **Export Type** and deselect all components.

Include the resulting XML file as a part of the files in the solution application package when preparing to migrate a solution.

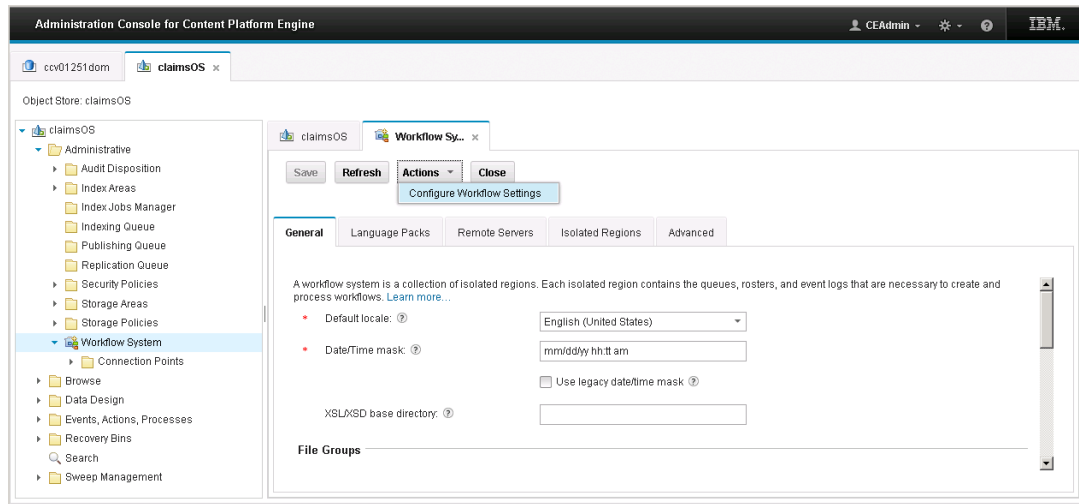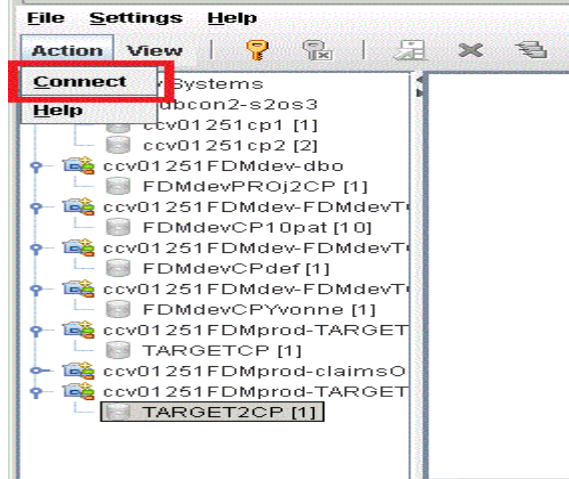| Step	Action
1	Log into the IBM Administration Console for Content Platform Engine (ACCE) using the URL http://<CPEserver_host:CPEserver_port>/acce For example, the default URL when using IBM WebSphere as the application server is: http://localhost:9080/acce For example, the default URL when using Oracle WebLogic as the application server is: http://localhost:7001/acce
2	Open the object store used as the target object store for the project area the solution application will be migrated from.
3	The Process Configuration Console can be found for a given object store on the **Administrative** node, **Workflow System > Actions > Configure Workflow Settings**
4	After the Process Configuration Console java applet is launched, from the Workflow Systems listed, select the connection point for the project area where the solution application resides. With the Action menu, use the Connect operation and connect to the desired workflow system isolated region.

Step	Action

| **5** | With the Action menu, use the Export to XML file operation to launch the export wizard. |

| **6** | On the **Export Configuration** dialog, use the **Browse** button to select a location and fill in a name for the **Export File.** |
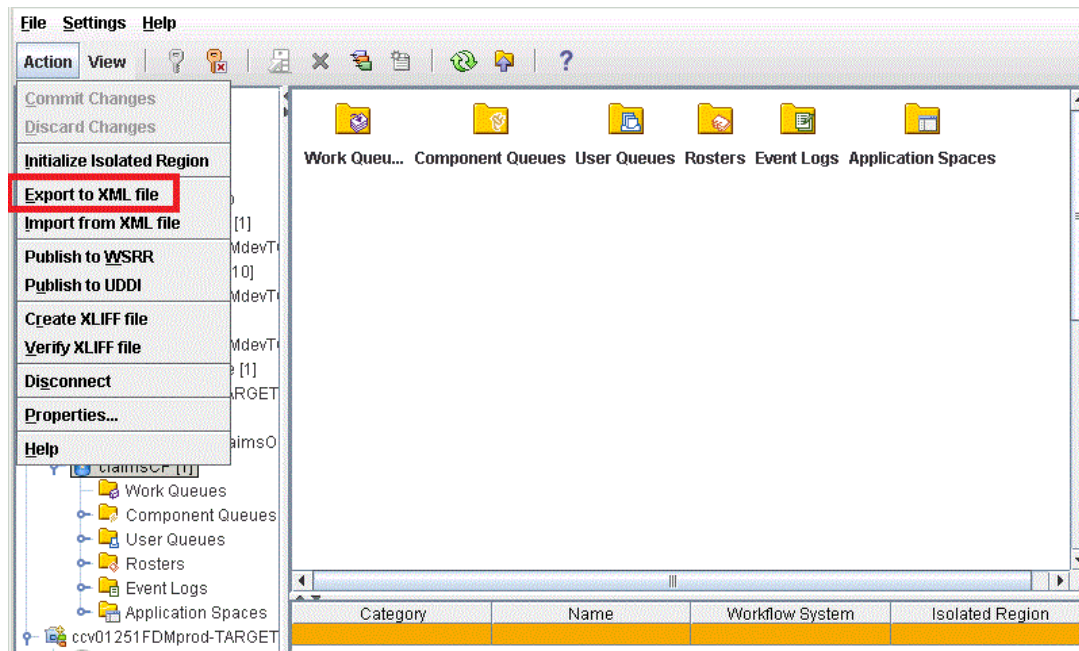
Step	Action
	Recommendation is to use a file name that describes the version of the assets being exported using the current date, a version designation, or some other labeling that can later identify this export file when it is copied to another system for import.
	Click **Save** .

Step	Action
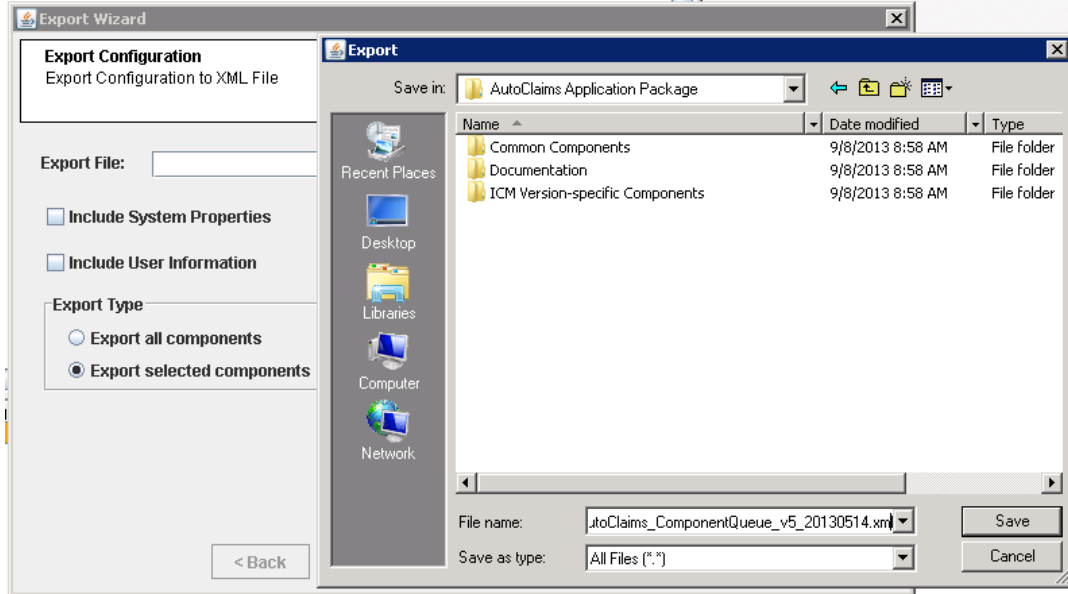
7	Select an **Export Type** of **Export selected components**.

In the example used for this article, only a component queue definition needs to be exported. You will choose different options if you need to export other FileNet P8 workflow system assets.

Click **Next**
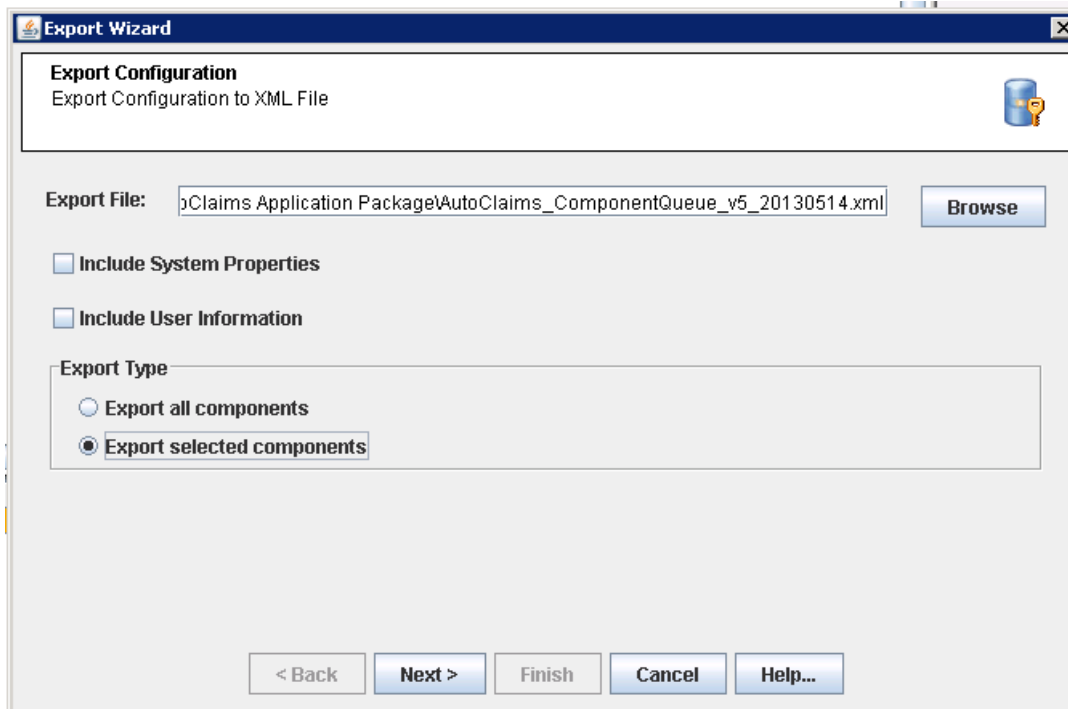
Step	Action

8 Deselect the check box at the topmost node to cause all subordinate check boxes to be deselected.

Open the node for the desired export component. In our example that is **Component Queues** .

Check the box corresponding to the desired export component. In our example this is the component queue named CEOpsExtended.

Click **Next** .

---

9 On the **Summary** dialog, review the information to verify it is correct.

Click **Finish** to begin the export operation.

When the Summary dialog closes, the export operation is complete.

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10 Close the Process Configuration Console by using **File > Exit** .

Task 4b – Export FileNet Content Manager assets

Export the required FileNet Content Manager assets from the target object store in the project area of the development environment where the solution application was created and unit tested. The export operation offers a choice of *include options*. These options direct FileNet Deployment Manager to include some, all, or none of the associated objects that an asset is dependent on as a part of the deploy dataset. Thus the deploy dataset can be directed to contain dependent objects without a requirement to explicitly identify and add each associated object to the export manifest.

Utilize export include options to narrowly focus the export. This approach is intended to avoid implicit inclusion of unwanted objects that can be caused by the propagation behavior of the include options. For a more detailed explanation, see the IBM Case Manager 5.2 topic "FileNet Deployment Manager include options for assets".

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	In the Environments node, navigate to and expand the node for the environment that will be used as the source for the export.
3	On the **Export Manifests** node for the source environment, right-click and select New > Export manifest
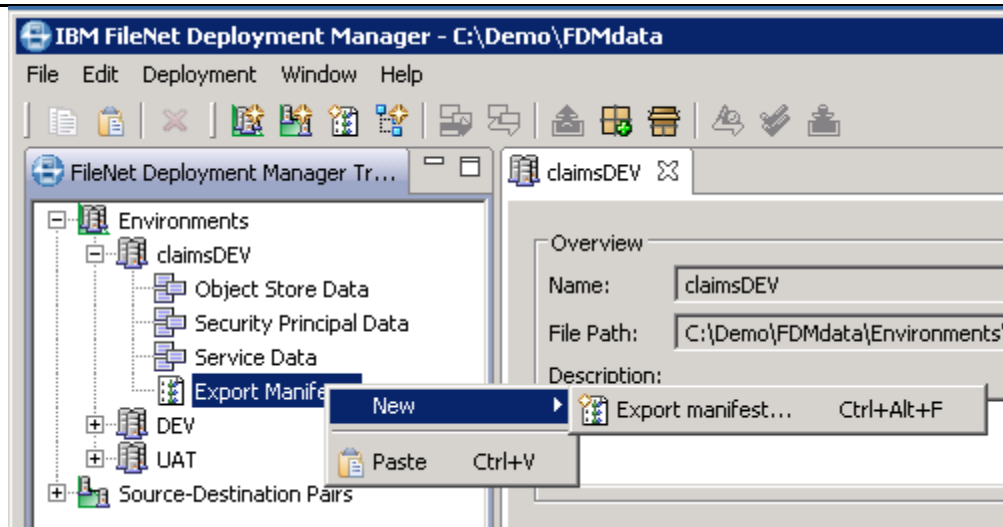
Step	Action
4	On the **Create a new export manifest** dialog, enter a name. In this example, **ClaimsSolutionFileNetAssets** is used.

> This name is used by later operations in FileNet Deployment Manager as a suggested default name. Assign a name that describes what the contents of the deploy dataset generated from the export manifest will be. Then those later default names will be useful and understandable.

Click **Finish** to create the empty export manifest XML file under the source environment in the deployment tree.

Step	Action
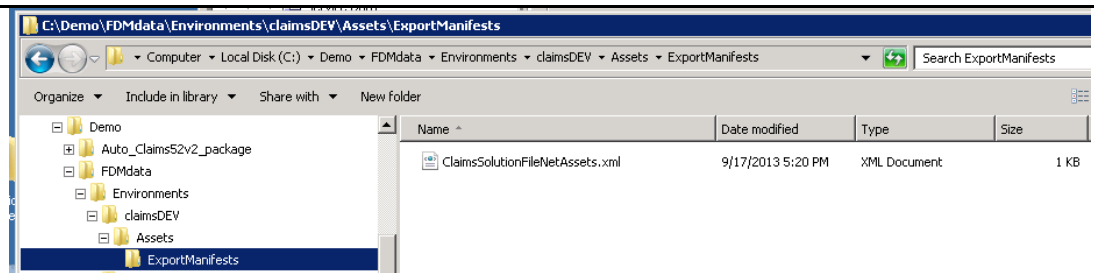
5	In FileNet Deployment Manager. double-click on the new export manifest node **ClaimsSolutionFileNetAssets.xml** to open the manifest and launch the export manifest editor.

6	Click on the green plus symbol on the tool bar to add assets to the manifest from the FileNet P8 domain.
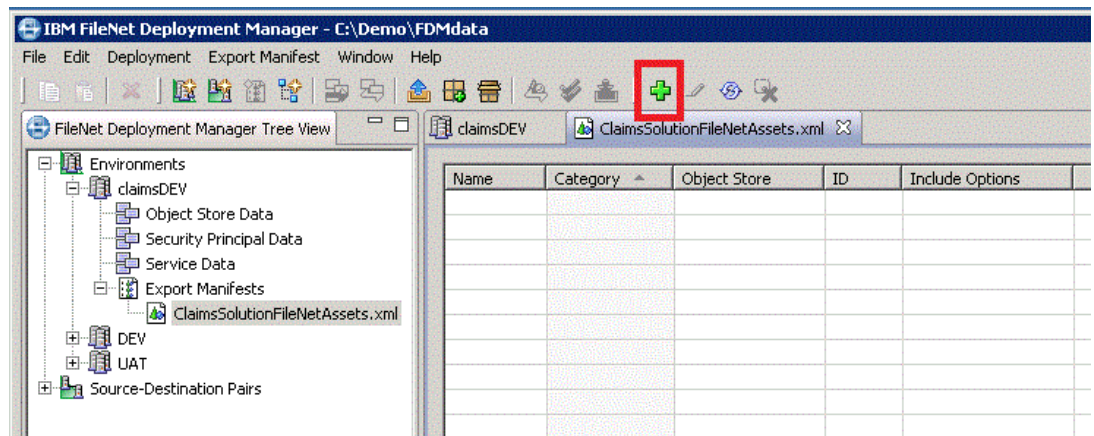
7	Using the navigation pane on the left, open the object store used as the target object store for the project area on the IBM Case Manager development system where the solution application was developed. Select nodes under the object store node to browse for assets to be added to the manifest.

Using the right-hand pane, select and **Add** all of the FileNet P8 assets that should be exported. In this example, the next few steps will show adding these assets to the manifest:
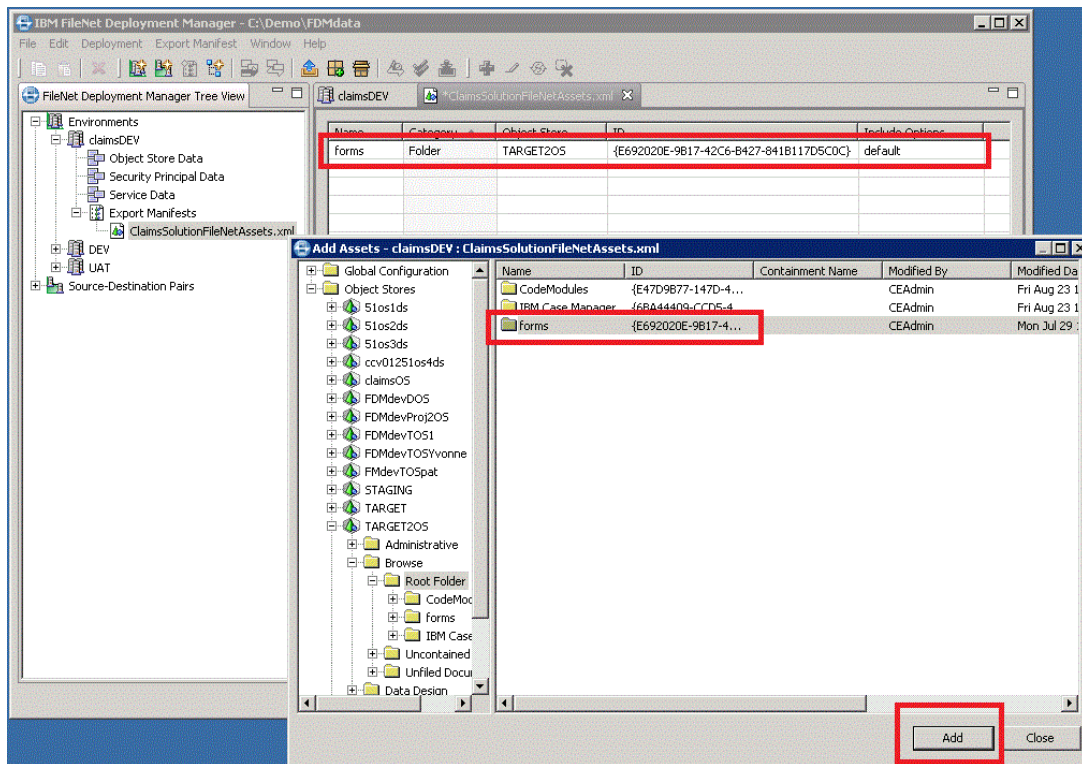
- The IBM Forms form template (FNOL_IBM_FORM_AC.xfdd) document and its parent folder, named *forms*, will be exported. However because the folder *forms* contains more than just the one desired form template, it and the form template document will be added to the export manifest as distinct entries with focused include options appropriate for the type of object.

- The code module *CEOpsExtended* used by the component queue's Java adapter and its parent folder named *CodeModules_WF* will also be exported. Since that folder was created especially to contain the code module, the include options in this example can be less focused and used to also implicitly export the parent folder with the code module document as a dependent object.

Step	Action
8	First the parent folder *forms* is added by navigating to its parent folder *(Root Folder)* in the navigation (left) pane and selecting then adding *forms* in the add assets (right) pane. An asset can be added to the export manifest by either:

   ○ single-clicking the asset in the right-hand pane to select and then using the **Add** button.

   ○ double-clicking the asset in the right-hand pane.

   ○ right-clicking on the asset and selecting **Add** from the context menu.

  After it is added, each asset is listed in the export manifest with identifying information such as display name and GUID.

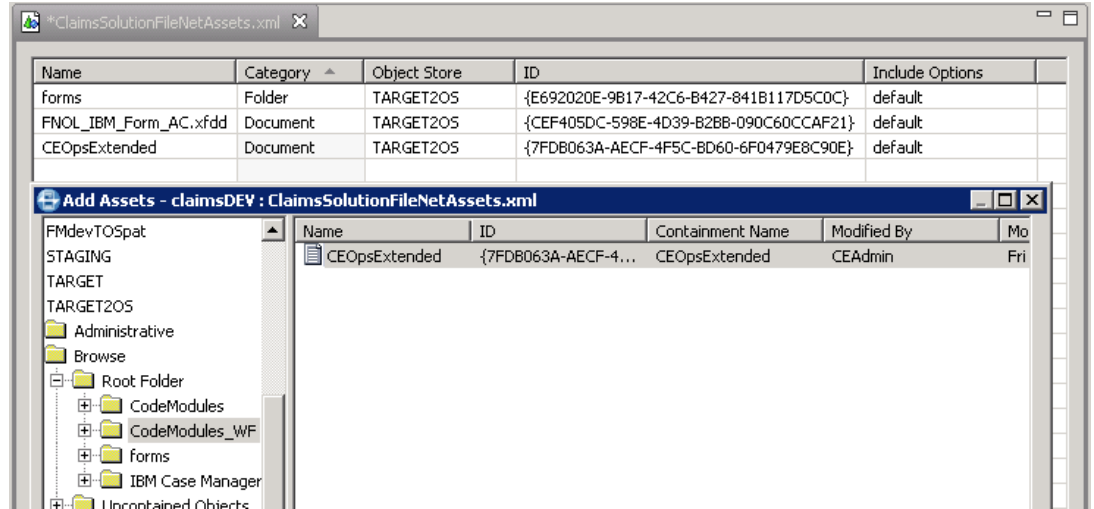| Step	Action
9	The add assets process is repeated to add the desired form template document to the export manifest. Using the left-hand navigation pane, open the parent folder *forms*.

  The document named *FNOL_IBM_FORM_AC.xfdd i*s added to the export manifest by double-clicking it in the right-hand add assets pane.

  Notice how both the folder object named *forms* and the document object named *FNOL_IBM_FORM_AC.xfdd* are now present in the export manifest.
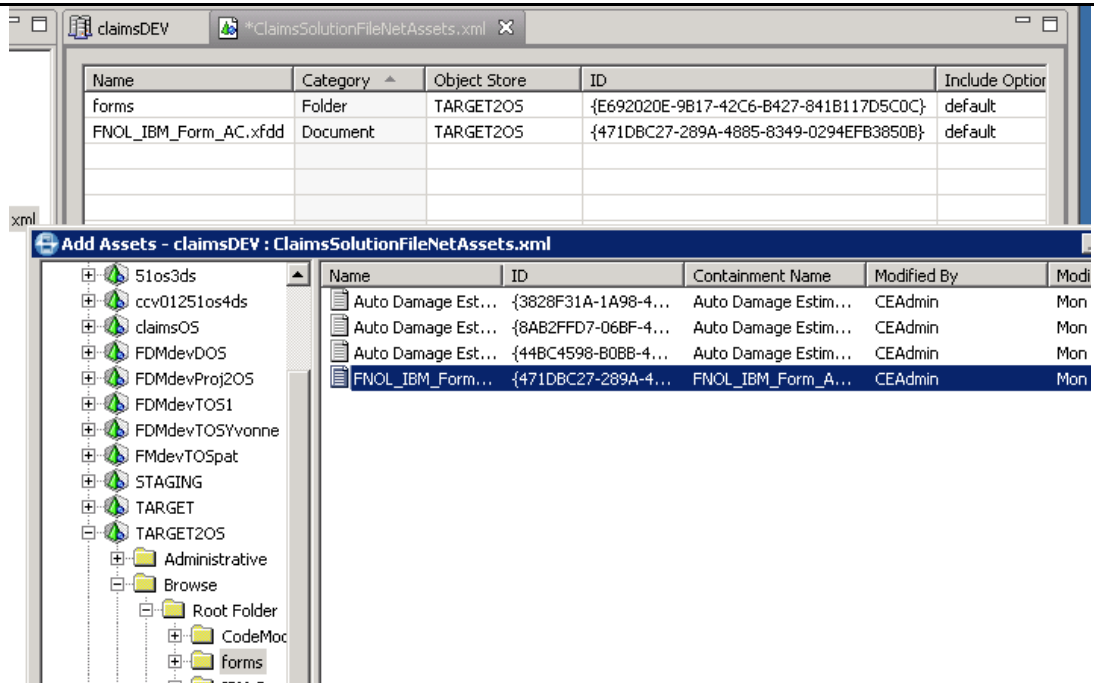
Step	Action

| **10** | Lastly the document representing the code module is added to the export manifest. |

| **11** | Click the **Close** button to close the **Add Assets** dialog. |

Step	Action

12   In the export manifest list, the Include Options column contains the word 'default' indicating the default include options are currently assigned. This will be modified.

Hover over the cell in the Include Options column to view current settings.

All the assets are selected to allow the include options they have in common to be modified.

Click the pencil icon on the tool bar to invoke the **Include Options** dialog.

13   On the Include Options dialog, the **None** button is used to clear all the include options directing the export process to only export the asset listed in the export manifest.

Click OK to accept the Include Options.

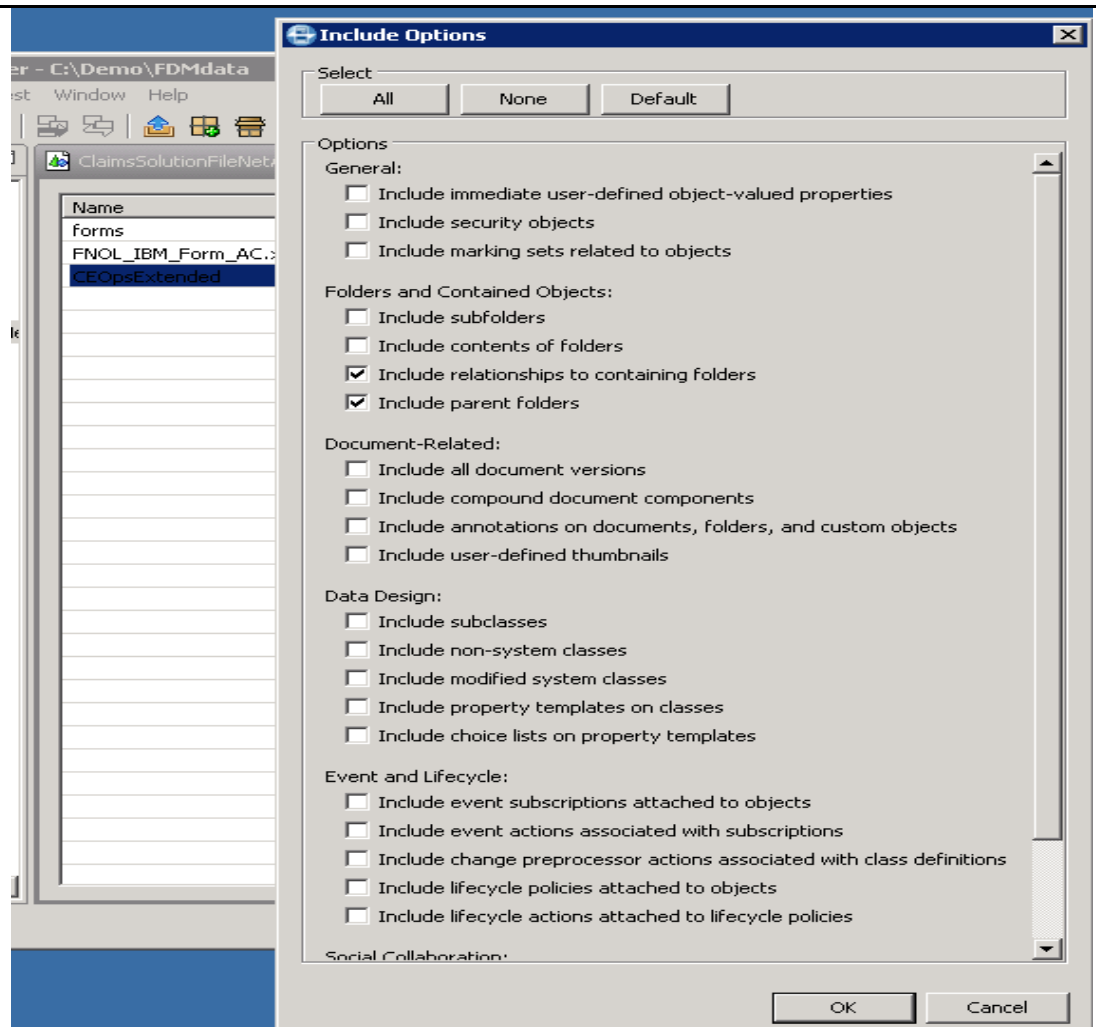**14**   Click File > Save to save the export manifest created at this point.

15   Observe in the export manifest list, the Include Options column contains the word 'none' indicating no include options are currently assigned for any of the assets in the export manifest.

Next only the document named *FNOL_IBM_FORM_AC.xfdd* is selected on the export manifest list and the pencil icon is pushed on the tool bar to invoke the **Include Options** dialog.

To ensure the document will be filed into the *forms* folder when it is imported, the include option **Include relationships to containing folders** is selected.

Click OK to accept the Include Options.

Step	Action

16	Next only the document named CEOpsExtended is selected on the export manifest list and the pencil icon is pushed on the tool bar to invoke the **Include Options** dialog.

To ensure the document, its containing folder and their relationship, will be exported into the deploy dataset, the include options **Include parent folders, Include relationships to containing folders** are selected.

Click OK to accept the Include Options. |

Step	Action

17	Click File > Save to save the export manifest created at this point.
18	Close the tab for export manifest **ClaimsSolutionFileNetAssets.xml**
19	In the navigation pane, right-click on the **ClaimsSolutionFileNetAssets.xml** node and select Export to start the export wizard.
20	On the Export Options dialog, note how the descriptive name chosen for the export manifest is used, by default, for the deploy dataset name. The name of the deploy dataset (*ClaimsSolutionFileNetAssets*) can be changed if a different one is desired.

Accept the defaults and click **OK** to start the export process. |

Step	Action
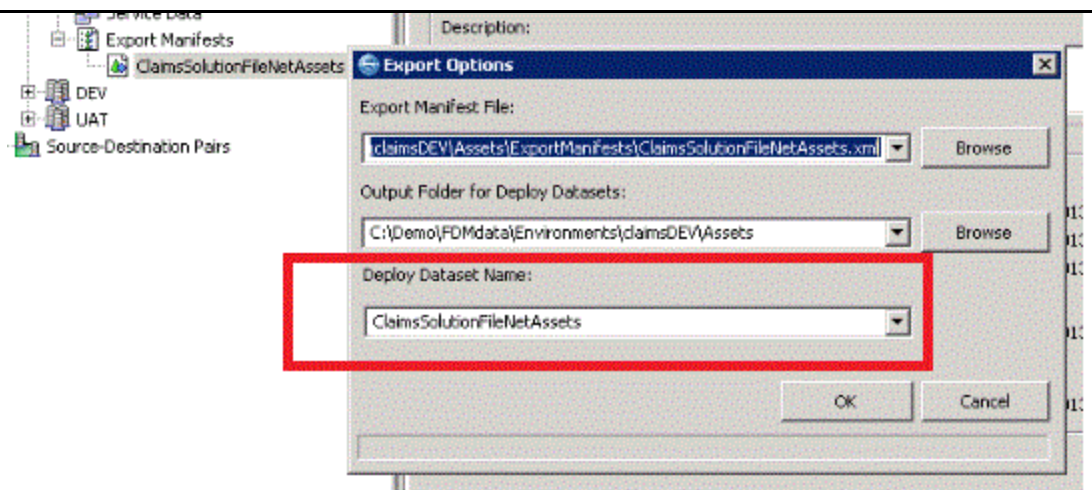
| **21** | Wait for the dialog indicating a successful completion. |

| **22** | On the completion dialog, verify the number of items processed matches the expected number of assets. In this example, six items were processed: |
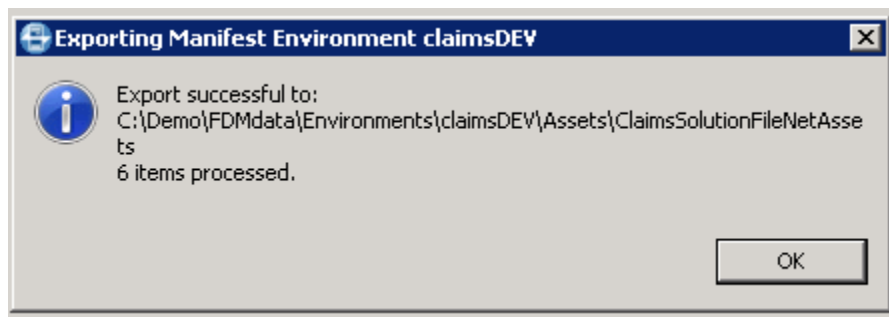
- The folder *forms* , the document *FNOL_IBM_FORM_AC.xfdd*, and the relationship between them = 3 items.

- The code module document *CEOpsExtended* along with its parent folder and their relationship = 3 items.

If the number of items greatly outnumber the assets in the export manifest, or many more items than expected were processed, examine the deployment.log file for the export process to look for unexpected items. Refer to the IBM Case Manager 5.2 topic "FileNet Deployment Manager include options for assets" for tips on how to use the include options to focus the export of assets.

The deployment.log file is located in the Temp directory of the deployment tree using a date/time naming scheme. In the example, the deployment log is located at C:\Demo\FileNet Deployment Managerdata\Temp\Run.2013.09.17.18.24.06\deployment.log

Step	Action
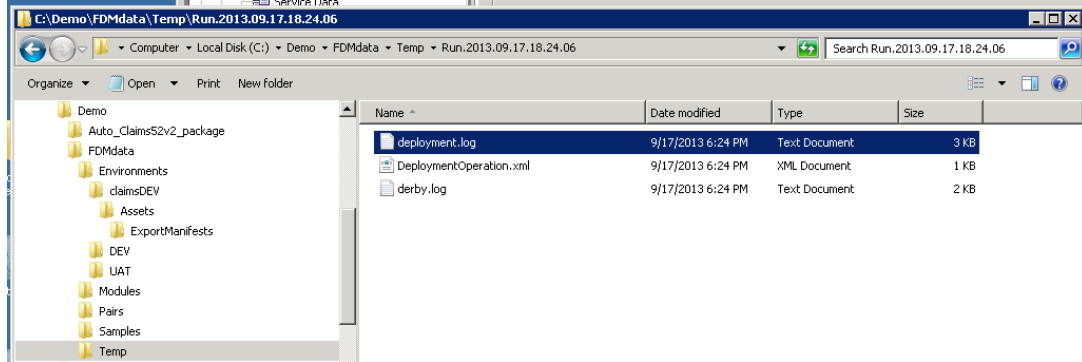
When building the deploy dataset, ensure an asset's dependencies are considered. For example:

- If a deployed code module is revised, then any action referencing the code module does not reference the latest version. To avoid this situation, it is important to include the referencing actions in the export. Alternatively, you can manually update the referencing actions on the destination system by copying a reference of the code module into the action object. In addition to action objects like an event action or change preprocessor, referencing elements can include a Java component adapter configured for a component queue. The component queue configuration is exported using the Process Configuration Console. See "Task - Export FileNet P8 Workflow System configuration" above.

- If a new version of a workflow definition document is exported, the workflow subscription that references it should be exported as well. This allows the FileNet Deployment Manager import option **Transfer workflows after import** to be used at import time to automatically update the workflow subscription to reference the newly imported and transferred workflow.

- If a pre-existing export manifest will be used, ensure that any document objects listed reference the correct version of the document. The export manifest refers to a specific document version and may need to be updated (the document removed and re-added to the manifest) if the document version has changed.

For more information about deploying code modules, see "Deploying Java action handlers" in the FileNet P8 5.2 Information Center.
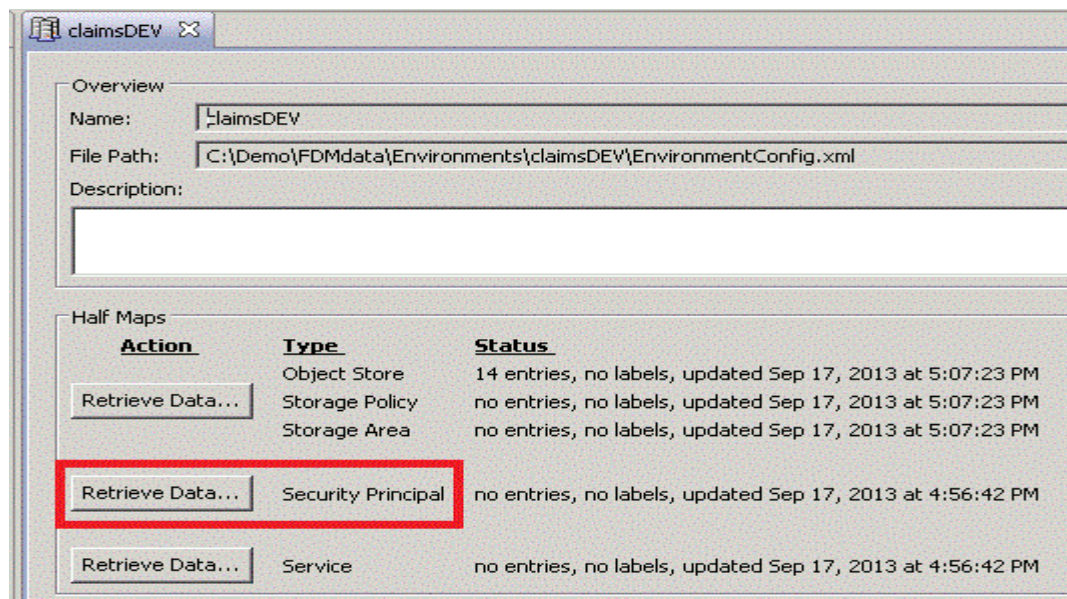
Task 4c – Create security principals half map

For a source half map, it is best to retrieve principal data from a deploy dataset such as the one created in the previous task "Export FileNet Content Manager assets". This creates a relatively small source security principals half map containing the principals that need to be converted for the import of assets the deploy dataset contains. Retrieving this focused list of security principals takes much less time than retrieving all the principals from a large LDAP directory.

To ensure the half map contains all the expected security principal field values and avoid potential issues when the security principal half map is used on the destination system, it is best practice to fetch the complete values from the LDAP. To avoid a fetch of all entries from a potentially large LDAP repository, the following procedure will show using the LDAP filter option **Use Environment's Principal Half Map** to augment the information obtained from the smaller deploy dataset with information from the actual LDAP.

For details on the process and options to create a security principal half map, see the FileNet P8 5.2 Information Center topic "Extract a security principal half map".

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	In the Environments node, navigate to and expand the node for the source environment.
3	Double-click on the source environment node (claimsDEV in the example) to open it.
4	Use the **Retrieve Data** button for the type **Security Principal** to start the wizard to retrieve the data.

Step	Action
5	On the first **Retrieve Data for Security Principal Half Map** dialog, choose **Deploy Dataset** File .
6	On the next **Retrieve Data for Security Principal Half Map** dialog,
	• Use the Browse button to select the deploy dataset containing the exported assets the principals will be extracted from. In our example the deploy dataset is located in the deployment tree at C:\Demo\FileNet Deployment Managerdata\Environments\claimsDEV\Assets\ClaimsSolutionFileNetAssets
	• For the **mode**,
	◦ if you are using an existing FileNet Deployment Manager environment and want to add security principals, choose **Merge.**
	◦ if you wish to utilize only the principals in this particular deploy dataset, choose **Overwrite**.
	◦ For a new environment, the choice or Merge or Overwrite yields the same result.
	For this example, Overwrite was chosen.
	Click Finish to start the extraction process.
7	Verify the process completed successfully.
	Click OK to dismiss the **Build principal half map** dialog**.**
8	When security principal data is retrieved only from a deploy dataset or configuration export file, the resulting security principal half map could be incomplete and might not contain expected values for the SID or shortname if the exported asset did not have all those values stored with it.
	Since this example will create a deploy package to use in a simulation of a solution migration across disconnected environments where information from the source environment LDAP is not available at the destination, this best practice of fetching the complete LDAP information at the source will be followed.
	☐
	Start by repeating step 6 and use the **Retrieve Data** button for the type **Security Principal** to start the wizard to retrieve the data.
9	On the first **Retrieve Data for Security Principal Half Map** dialog, choose From Content Engine's LDAP Provider .
10	On the next **Retrieve Data for Security Principal Half Map** dialog,
	◦ Use the **Retrieve Realms** button to cause FileNet Deployment Manager to populate the available LDAP Realms.
	◦ Choose the appropriate LDAP realm (the example only has one possibility)
	◦ For the **Filter**, choose **Use Environment's Principal Half Map** .

Step	Action

- In the **Filter Settings** , select the source environment where the desired security principal half map resides, in this example claimsDEV .

- For the **Mode** choose **Merge** to allow labels that might have been added to the half map to be retained.

Click **Finish** to start the extraction process.

11	Verify the process completed successfully.
	Click OK to dismiss the **Build principal half map** dialog**.**

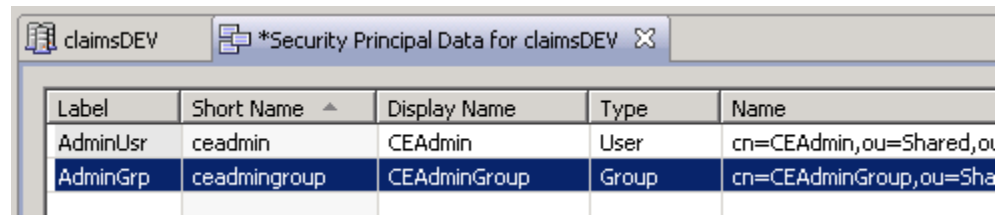| 12	In the navigation pane, double-click on the **Security Principal Data** node of the source environment to open the Security Principal half map.

13	Optionally assign values in each row for the Label column. Labels in the half maps for the source and destination environments are matched automatically when the source-destination pair data maps are built.
	Using labels is a good way to let the software automatically map security

principals created in the *Prepare* phase of deployment.

14	If labels are added or modified, use File > Save to commit them in the half map.
15	Close the Security Principal half map tab.

Task 4d – Create services half map

This task is optional depending on the solution application design. In our example, the IBM Forms form template contains a web services reference that will need to be mapped to a valid value for the destination environment.

Service information can be extracted from the following sources:

- FileNet Content Manager deploy dataset containing documents whose content can be processed by FileNet Deployment Manager to extract the service data. In the IBM Case Manager system, many document types are supported by FileNet Deployment Manager including: Case Manager pages, workflow definitions and form templates.

- FileNet workflow system configuration export file: Service information might be present for region-wide properties, such as specified web applications. Content Platform Engine user information can also appear in the service half map extracted from a configuration export file.

- Service half map for the source FileNet Deployment Manager environment: The service half map data gathered from the source environment provides a starting point for creating a service half map to use for the destination environment. This technique will be used later in this article.

- Note that if you attempt to extract service data from a set of assets, but none of their content contains service information, no error occurs and the service half map remains empty.

For details on the process and options to create a service half map, see the FileNet P8 5.2 Information Center topic "Extract a service half map".

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	In the Environments node, navigate to and expand the node for the source environment.
3	Double-click on the source environment node (claimsDEV in the example) to open it.
4	Use the **Retrieve Data** button for the type **Service** to start the wizard to retrieve the data.
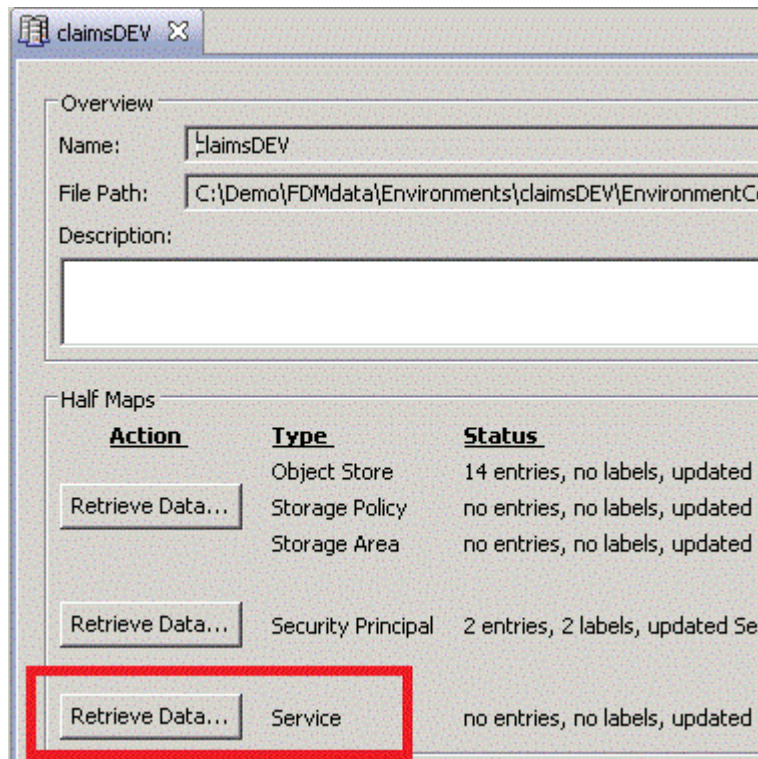
| Step	Action
5	On the first **Retrieve Data for Service Half Map** dialog, choose **From CE Deploy Dataset File** .
6	On the next **Retrieve Data for Service Half Map** dialog, • Use the Browse button to select the deploy dataset containing the exported assets the services information will be extracted from. In our example the deploy dataset is located in the deployment tree at C:\Demo\FileNet Deployment Managerdata\Environments\claimsDEV\Assets\ClaimsSolutionFileNetAssets • The behavior of Merge or Overwrite is as described before for the Security Principal half map. Since this is a new environment both modes yield the same result and a **mode** of Overwrite was chosen. Click Finish to start the extraction process.
7	Verify the process completed successfully.

| Step	Action
	Click OK to dismiss the **Build service half map** dialog**.**
8	In the navigation pane, double-click on the Service **Data** node of the source environment to open the Service half map.
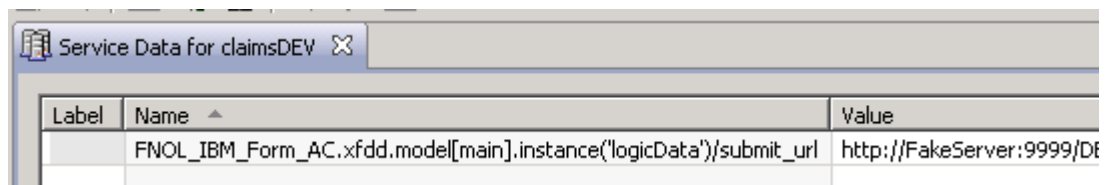
Step	Action
9	No further edits are needed at this time. This half map will be used in a task later.
	Close the Service half map tab.
10	Observe the files holding the object store, principal, and service half maps are now populated for the claimsDEV environment in the deployment tree.
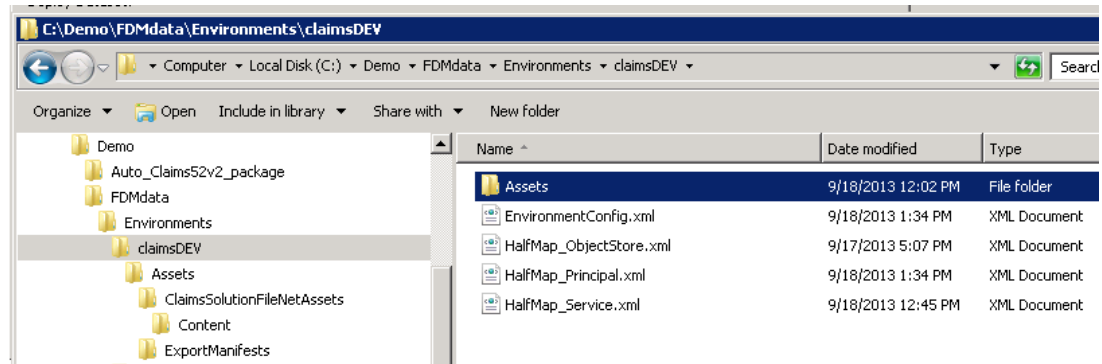
Task 4e – Create FileNet Deployment Manager deploy package

In FileNet Deployment Manager, a deploy package is a compressed file of deployable assets that FileNet Deployment Manager can utilize to migrate them into a different environment. Using a deploy package is a multi-step process. First use FileNet Deployment Manager to construct a deploy package from the assets that were previously exported creating a deploy
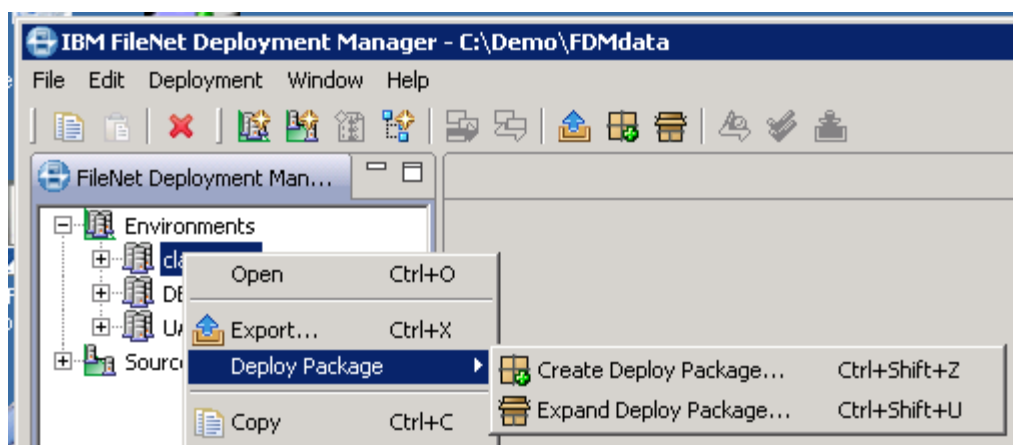
dataset. Then you transfer the deploy package (zip file) to a different system for use by an instance of FileNet Deployment Manager that can access the destination environment. Finally, FileNet Deployment Manager is utilized to expand the deploy package and subsequently execute all the tasks to complete the migration and deployment process.

This task shows how to create a deploy package for the example deploy dataset ClaimsSolutionFileNetAssets.

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Use **File > Deploy Package > Create Deploy Package** to launch the wizard.

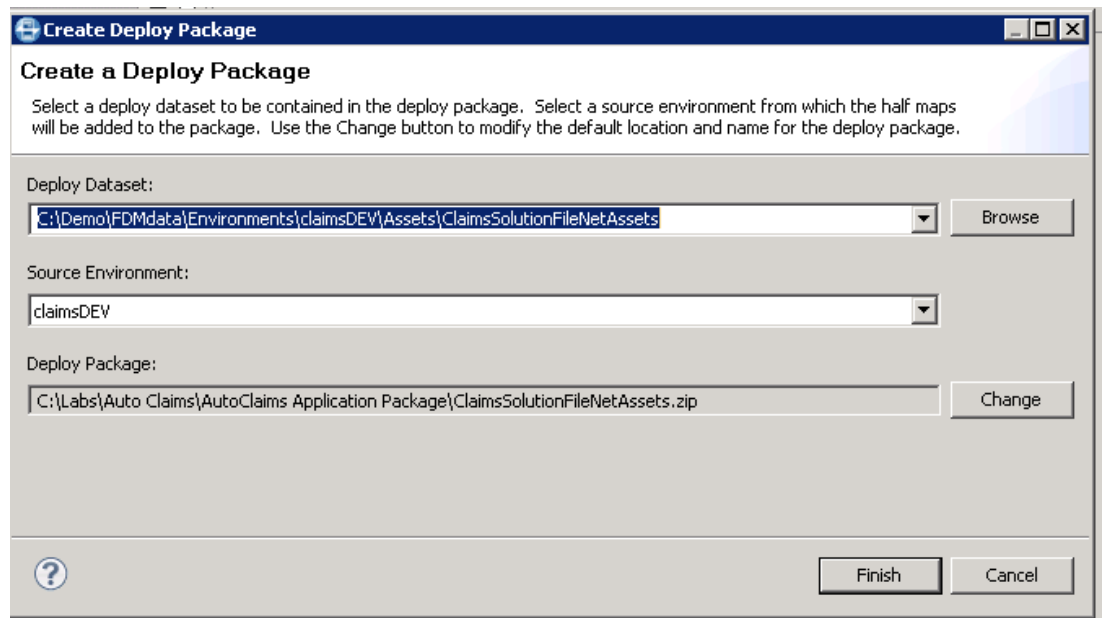| Step	Action
3	On the **Create a Deploy Package** dialog,

- Use the **Browse** button to locate and select the desired deploy dataset to use to create the deploy package. In this example, C:\Demo\FileNet Deployment Managerdata\Environments\claimsDEV \Assets\ClaimsSolutionFileNetAssets

- Verify the Source Environment reflects the desired environment to get the half maps from. (By default it is pre-set to the environment the Create a Deploy Package wizard was launched from.)

Step	Action
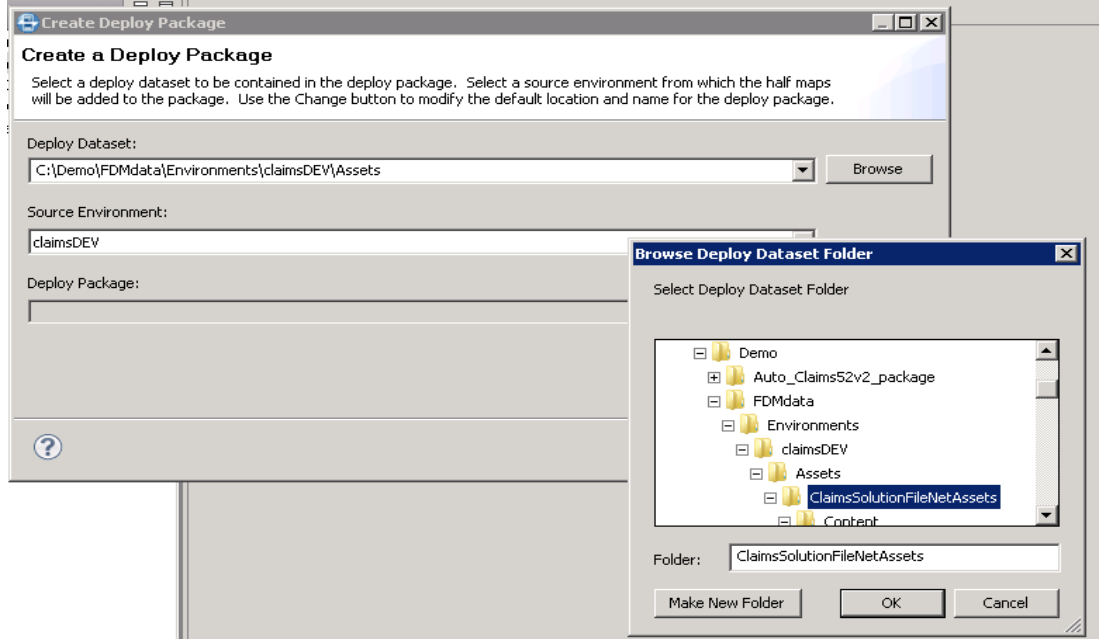
| 4 | ○ For the **Deploy Package** location, use the Change button to place the package in a location where it can be easily found. In our example we'll put the FileNet Deployment Manager deploy package in a well-known location. The same well-known location was used in Part 1 of this series when the solution package was created by exporting the solution with the IBM Case Manager administration client. |

Click **Finish** to start the creation of the deploy package.

Step	Action
5	Verify the process completed successfully.
	Click OK to dismiss the completion dialog.

Prepare to import into destination environment

Unlike the IBM Case Manager assets which are imported into a staging object store, import of the other FileNet P8 assets is directly into the destination target environment. Therefore the import operation is not performed until the *Deploy* phase of the migration and deployment process.

However many tasks can be performed in preparation for the deploy. Doing as much work as possible before the deploy reduces the time and effort of that phase and will facilitate getting the UAT or PROD system back online as soon as possible.

One such set of tasks is the one-time setup of an FileNet Deployment Manager deployment tree and environment to support the destination environment. If a deployment is disconnected or different computers will be used to perform the export versus the import, then another deployment tree must be created. You would repeat the tasks in the section "Prepare" above to create an FileNet Deployment Manager deployment tree and FileNet Deployment Manager environment to represent the destination environment. This would be completed as a one-time effort before starting the next set of tasks. In this example, an FileNet Deployment Manager environment called claimsUAT was created in the destination environment's FileNet Deployment Manager deployment tree. The **PE connection point** for the destination target environment where the solution will be deployed is chosen.
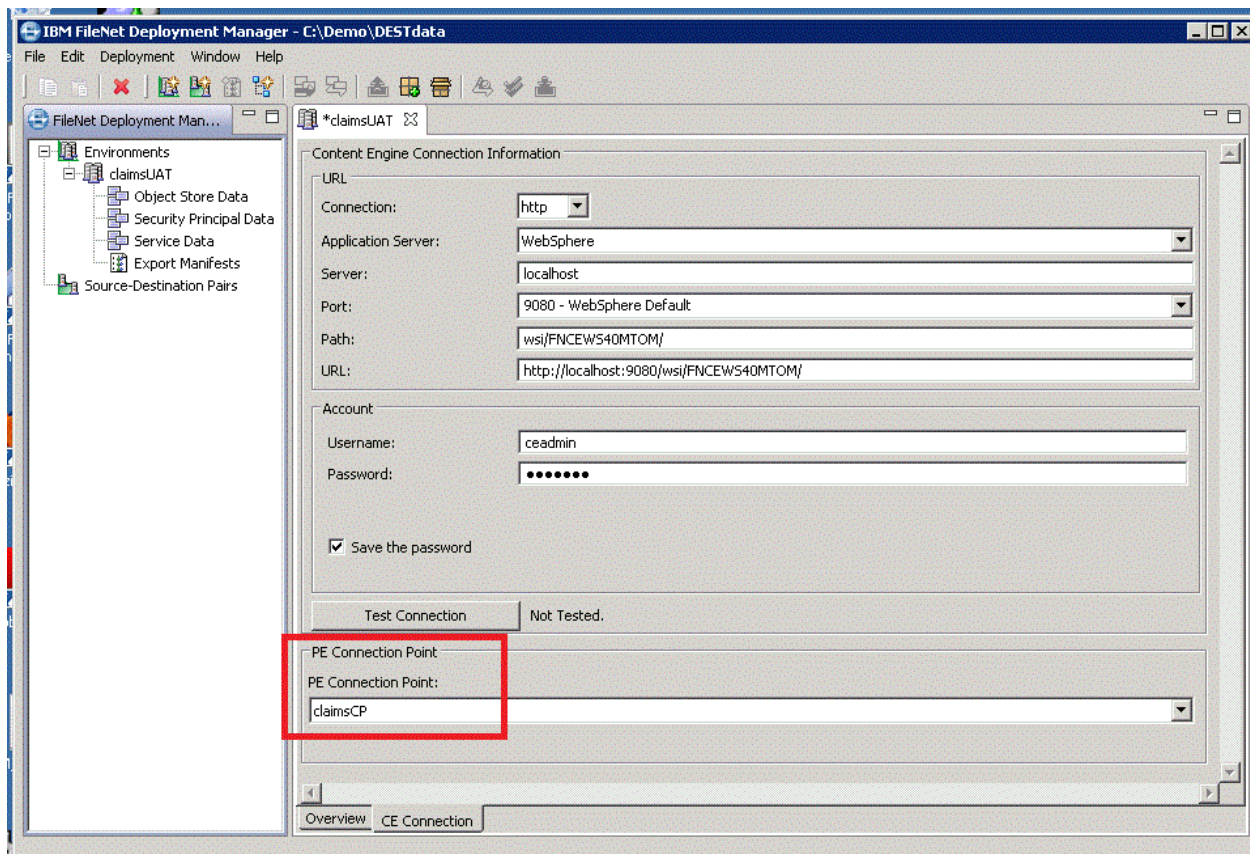
The half map for the object stores at the destination was also generated as previously described.

The FileNet Deployment Manager deployment tree can be stored locally on an individual solution administrators desktop or placed in a central location where access to it can be coordinated.

Task 8a – Extract FileNet Deployment Manager deploy package

The FileNet Deployment Manager deploy package created previously would have typically been bundled with the other solution application artifacts such as the solution package, and security or audit configuration manifest packages. This bundle might be managed using a source control system or some formal process to ensure all the pieces being deployed as the next version of the solution application will be well understood. The deploy package would have been transferred to the destination environment as a part of the overall solution application bundle.

The FileNet Deployment Manager instance used for the destination environment will then typically be asked to expand the deploy package and subsequently execute all the tasks to complete the migration and deployment process. The deploy package extraction can either create the required FileNet Deployment Manager source environment in the deployment tree, or the expanded deploy package can be placed within a pre-existing source environment in the

deployment tree. This allows a solution redeployment to leverage the work to create the source and destination half maps, and source-destination pair mapping assignments from previous solution application migrations.

This example shows a first time migration to a destination environment that is disconnected from the source. A new FileNet Deployment Manager deployment tree and FileNet Deployment Manager environment that connects to the destination FileNet P8 domain were created as a part of the preparation of the destination system.

With a disconnected deployment, the original source environment is presumed to be unavailable. FileNet Deployment Manager makes this assumption as well and the connection specifications from the source are not carried across in the FileNet Deployment Manager deploy package. Assuming the source half maps were completely populated before the deploy package was created, additional information from the source will not be needed.

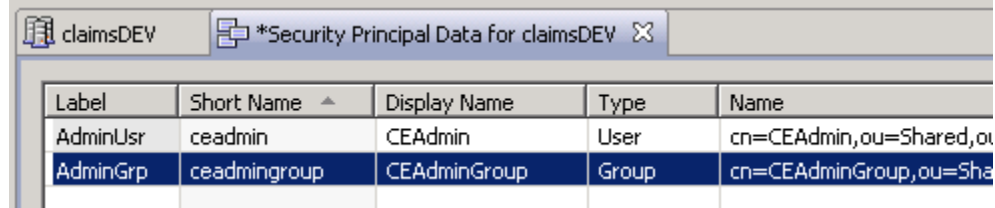| Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Use **File > Deploy Package > Expand Deploy Package** to start the wizard.
3	On the **Expand a Deploy Package** dialog, ○ Use the **Browse** button to navigate to and select the zip file containing the FileNet Deployment Manager deploy package. ○ For **Source Environment** , select the option to **Create New Source Environment** and assign a name. In this example we used the same name as before, claimsDEV, but that is not a requirement. ○ For the **Half Map Mode**, choose **Extract from Package** from the pull-down. ○ Leave the value for **Deploy Dataset** at its default setting. We'll let the deploy package be expanded into its default location in the deployment tree. Click **Finish** to start the expansion process.

Step	Action
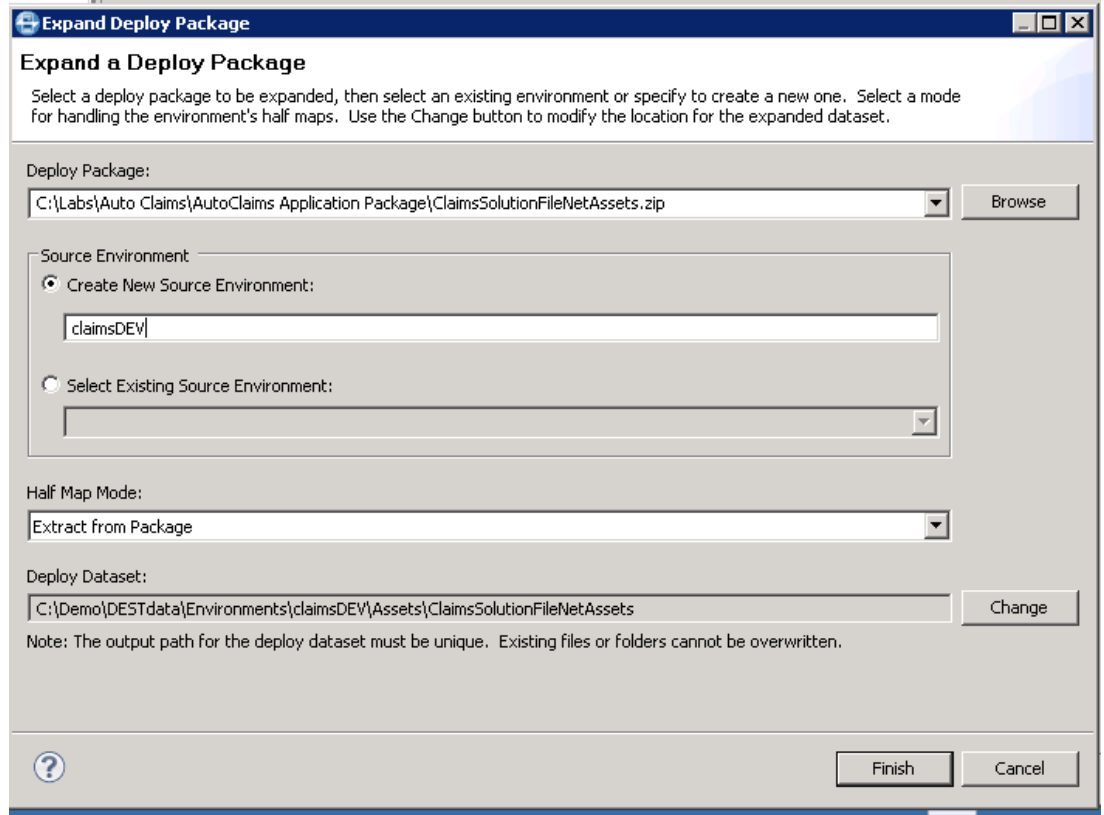
| 4 | Verify the process completed successfully. |
| | Click OK to dismiss the completion dialog. |

| 5 | In the Environments node, navigate to and expand the node for the source environment just created by the expand deploy package wizard. |

| 6 | Double-click on the source environment node (claimsDEV in the example) to open it. |

| 7 | In the navigation pane, double-click on the **Security Principal Data** node of the source environment to open the Security Principal half map. |

| 8 | Note labels assigned when the half maps were created at the source are retained in the deploy package and appear here in the destination. |

Step	Action
9	Repeat step 6 for the object store and service nodes to verify the extraction of those half maps from the FileNet Deployment Manager deploy package.

Task 8b – Create security principals half map

Having distinct half maps allows each environment to be matched in different source-destination pairs without requiring individual half maps to be rebuilt. For example, remember the traditional P8 application migration model:

DEV > UAT > PROD

In that model, the UAT environment is both source and destination and would participate in at least two source-destination pairings:

DEV-UAT

UAT-PROD

Even with two pairings, only one FileNet Deployment Manager environment with its half maps needs to be created for UAT. Although the security principal half map from the source environment was brought across in the deploy package, a corresponding half map must be created for the destination environment.

In the source environment, the deploy dataset was used to filter the LDAP repository and avoid a time-consuming download when the LDAP population was large. For the destination environment a deploy dataset is not available. However the information gathered in the preparation phase with respect to the security principals that will be used in the source and destination environments can be leveraged.

FileNet Deployment Manager allows for the manual creation of a file that can be used to filter the LDAP repository. This file is called the *Label File*. This is a text file containing the short name for each user or group to retrieve. The file can also, optionally, include the value for the label to assign in the half map. Enter the values (short names first) for each user and group on a separate line and use a comma to separate the short name and label. For example in our scenario we might use a file like this:

CEMPadmin, AdminUSR

P8admins, AdminGRP

For more details, see the "[Extract a security principal half map](#)" topic in the FileNet P8 5.2 Information Center.

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	In the Environments node, navigate to and expand the node representing the destination environment.
3	Double-click on the destination environment node (claimsUAT in the example) to open it.
4	Use the **Retrieve Data** button for the type **Security Principal** to start the wizard to retrieve the data.
5	On the first **Retrieve Data for Security Principal Half Map** dialog, choose **From Content Engine's LDAP Provider** .
6	On the next **Retrieve Data for Security Principal Half Map** dialog, ○ Use the **Retrieve Realms** button to cause FileNet Deployment Manager to populate the available LDAP Realms. ○ Choose the appropriate LDAP realm (the example only has one possibility).

Step	Action

- ◦ For the **Filter**, choose **Use a Label File** .

- ◦ In the **Filter Settings** , browse to the text file previously created to use as the filter file.

- ◦ For the **Mode** choose **Overwrite** or **Merge** .

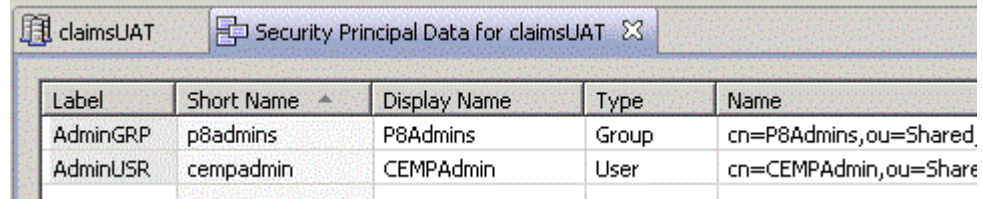Click **Finish** to start the extraction process.
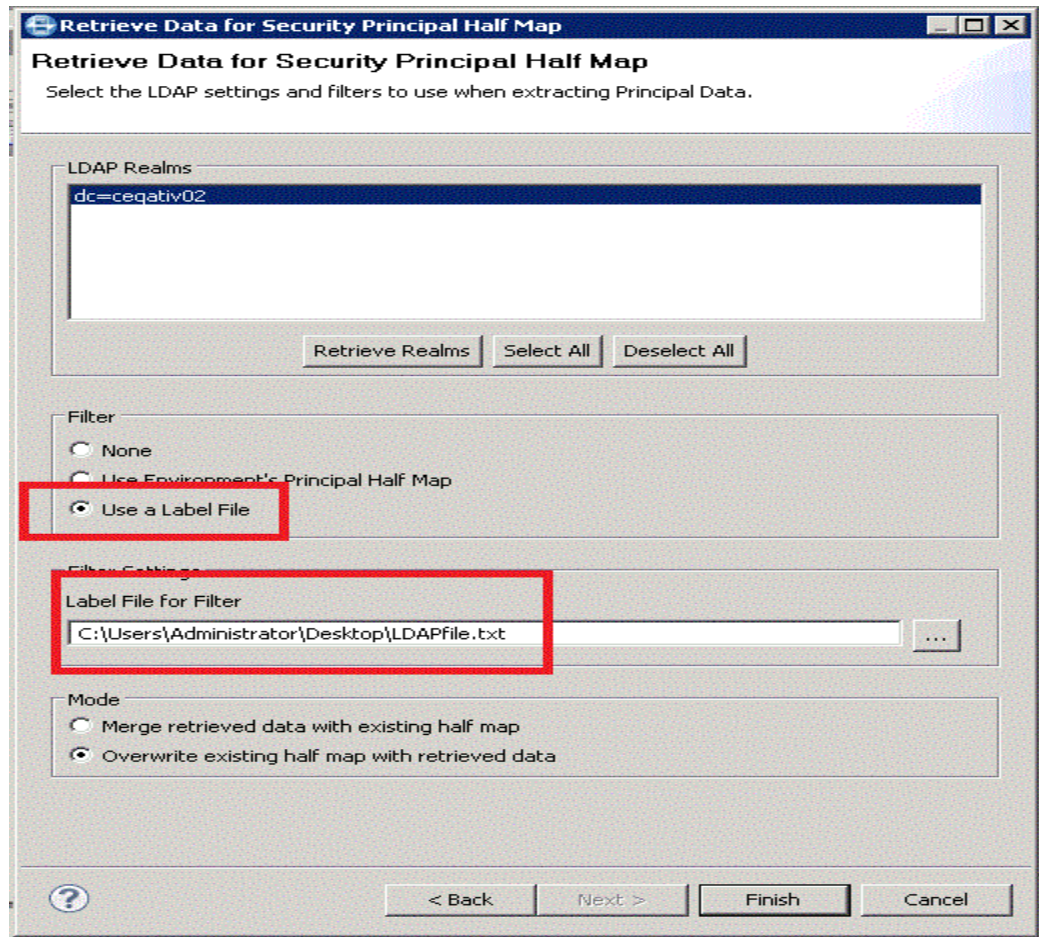
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7 Verify the process completed successfully.

Click OK to dismiss the **Build principal half map** dialog**.**

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8 In the navigation pane, double-click on the **Security Principal Data** node of the source environment to open the Security Principal half map.

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9 Observe how the labels provided in the filtering file appear in the half map. Note also these are the same labels assigned earlier when constructing source environment security principal half map.

Step	Action

Step	Action
10	Close the Security Principal half map tab.

Task 8c – Create services half map

To create the services half map for the destination, a short cut is available. Typically the mapping of services is a simple edit of host and port specifications in a set of URLs. The FileNet Deployment Manager services mapping mechanism allows for the direct editing of the services information to simply and easily correct those values to reflect a new environment.

The services half map brought over from the source environment in the FileNet Deployment Manager deploy package will provide the starting point for listing the services specifications that might need correction. If the same services are available to both the source and destination environments, then no edit is needed.

For more information see "Create a destination service half map" in the FileNet P8 5.2 Information Center.
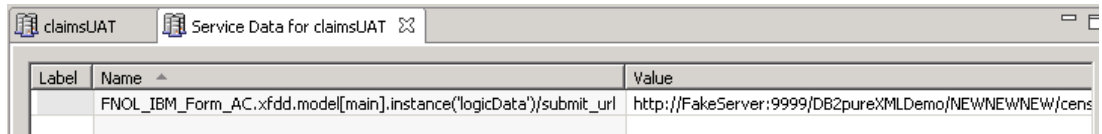
Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	In the Environments node, navigate to and expand the node for the destination environment.
3	Double-click on the destination environment node (claimsUAT in the example) to open it.
4	Use the **Retrieve Data** button for the type **Service** to start the wizard to retrieve the data.
5	On the first **Retrieve Data for Service Half Map** dialog, choose **From an Environment's Service Half Map** .
6	On the next **Retrieve Data for Service Half Map** dialog, select the source environment created by the expansion of the FileNet Deployment Manager deploy dataset, claimsDEV in the example.

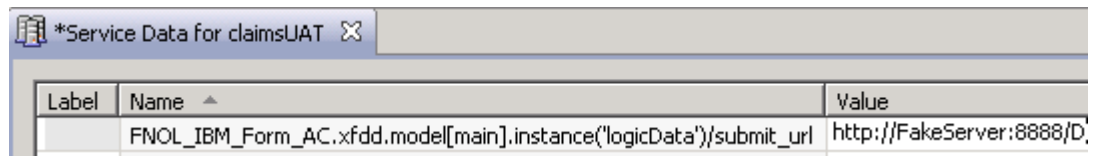| Step	Action
	For the mode choose Merge or Overwrite as desired.
	Click **Finish** to create the half map.
7	Verify the successful completion of the operation and click **OK** to dismiss the dialog.
8	In the navigation pane, double-click on the **Service Data** node of the destination environment to open the half map for the service data. Note it appears identical to the source environment service half map

| Step	Action
9	Edit the entry in the **Value** column to reflect the correct URL for the destination environment. Click in the cell of the **Value** column and directly edit the value.

Step	Action
10	Use File > Save to commit the changes in the half map.
	Close the service data half map tab.
11	Observe that the FileNet Deployment Manager deployment tree built for the destination system now has half maps for both the source (claimsDEV from the deploy package) and destination (claimsUAT built from information obtained from the destination system) environments.

Step	Action
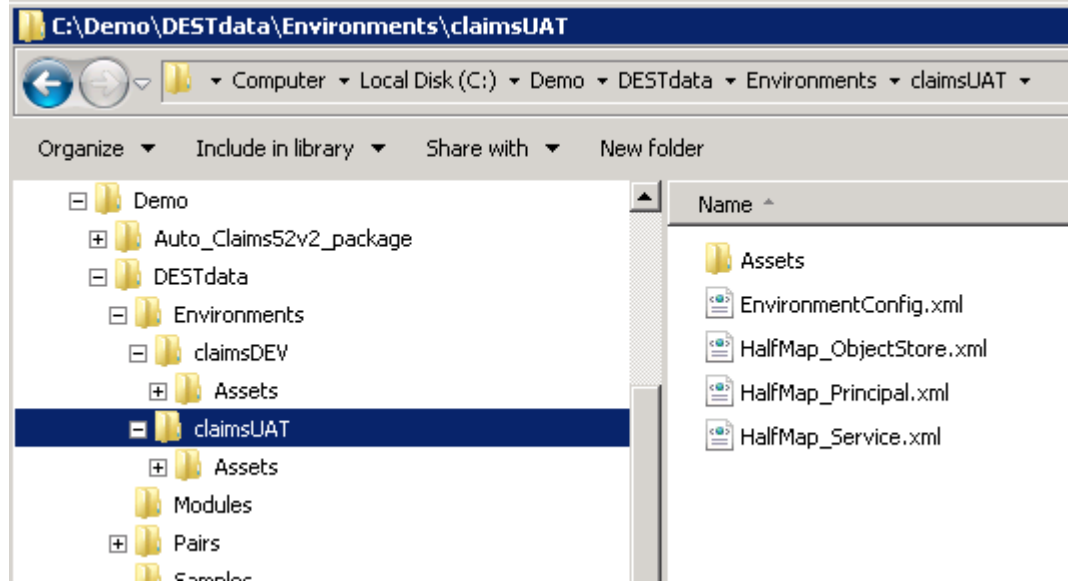
Task 8d – Create source-destination pair with data mappings

The source-destination pair identifies the source and destination environments to use for a specific deployment. The data gathered for the pair includes the desired mappings between the environments for corresponding object stores, services, and security principals. The half maps for the two environments are used as a starting point. FileNet Deployment Manager then generates a first pass at the mappings matching entries using the assigned labels and, if no labels match, logical values such as security principal short name. FileNet Deployment Manager then provides the user with an opportunity to correct the default mapping and provide the appropriate values for unmapped entries.

This task demonstrates how to create a source destination pair and how to use the FileNet Deployment Manager user interface to verify the mappings created by FileNet Deployment Manager. For more details on how the mappings are represented in the FileNet Deployment Manager deployment tree, see "Deployment configuration formats" in the FileNet P8 5.2 Information Center.

As you work with the data mapping dialogs, take note of these icons:

Icon	Description
	More information is available about the items in the row of the data grid. Hover over the icon to see the additional details.
	Mapping generated from FileNet Deployment Manager default matching rules based on item attributes.
	Mapping is explicit user match using labels or direct assignment on the data mapping dialog.
	No match exists; item will not be mapped during conversion.

For more information about working with FileNet Deployment Manager data maps, see FileNet P8 5.2 Information Center topic "[View or update a data map](#)".

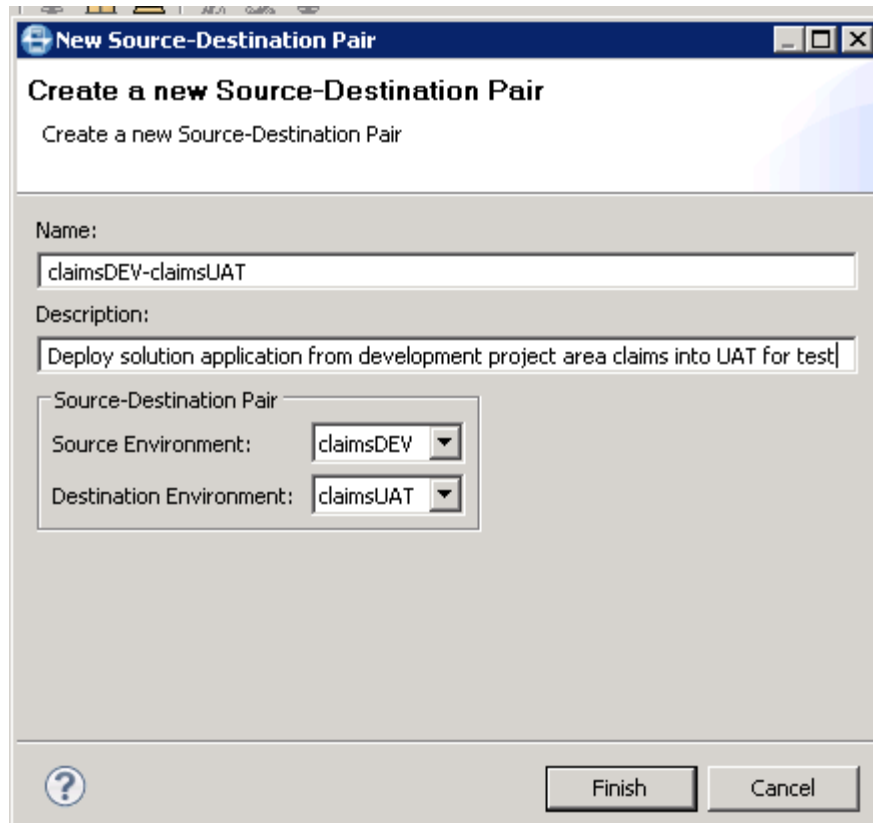| Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Select **File > New > Source-Destination Pair**
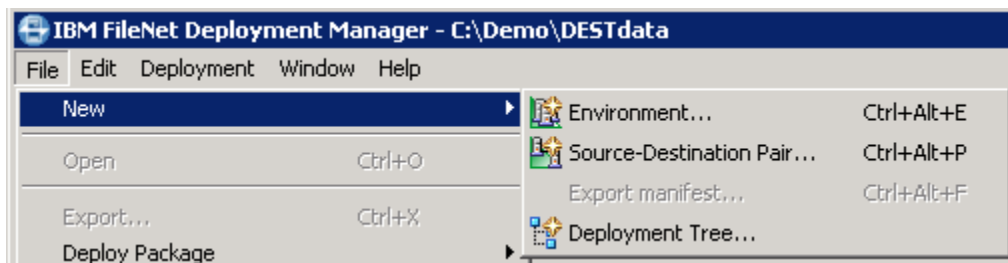
Step	Action
3	On the Create a new Source-Destination Pair dialog, fill in a descriptive name, description, and select the FileNet Deployment Manager environments that will participate in the roles of source and destination. Click **Finish** to create the new pairing. ![New Source-Destination Pair dialog showing Name: claimsDEV-claimsUAT, Description: Deploy solution application from development project area claims into UAT for test, Source Environment: claimsDEV, Destination Environment: claimsUAT, with Finish and Cancel buttons]
4	Expand the new claimsDEV-claimsUAT node in the navigation pane under the Source-Destination Pairs node
5	Double-click on the Object Store Map node to open it. To create the mapped data, FileNet Deployment Manager examines the half maps for the two environments and matches the values using the Object Store names. In our example this is not the desired mapping since the import of the other FileNet P8 assets will be from the target object store for the development environment project area (TARGET2OS) to the target object store for the target environment in UAT (claimsOS). To correct this inaccurate (but understandable) default choice by FileNet Deployment Manager, the mapping for claimsOS must first be undone. This type of replacement edit is typical where object store names are the same between P8 domains due to naming standards or where the source and destination environments are part of the same P8 domain.
6	The example scenario needs to map TARGET2OS to the claimsOS object store in the

destination environment. However claimsOS is already mapped – to itself. Attempting to use claimsOS as the destination for a second mapping with TARGET2OS will result in an error.

To first remove the mapping assigned to claimsOS, use the drop-down present in each cell for **Destination Name**. Scroll-up to the first entry which is blank indicating a choice of none. Select the blank entry. This makes claimsOS not mapped.

7	To assign claimsOS as the mapped object store for TARGET2OS , use the drop-down present in each cell under the **Destination Name** column**.** To do this, locate TARGET2OS under the **Source Name** column and use the drop down in the **Destination Name** column to select desired destination object store, claimsOS in the example .

Note how the next screen capture below shows a warning symbol on the row for claimsOS and ### in the **Destination Name.** This calls attention to the situation of a now unassigned destination mapping. This situation is noteworthy because if a required entry in the deploy dataset does not have a corresponding mapping, the conversion of a deploy dataset will fail.

Unmapped entries should be carefully examined to ensure they will not cause errors in subsequent FileNet Deployment Manager operations. But it is not uncommon to have unmapped entries.

Sort by the second *mapping status* column in the Map pane to arrange all unmapped entries together to find them easily.

Step	Action

Mapping status column

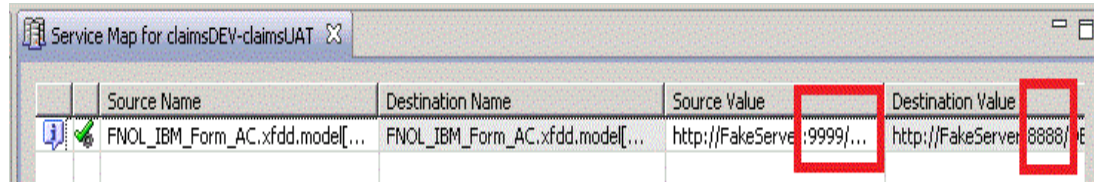| Step	Action
8	Use File > Save to save the mapping changes
9	Close the Object Store Map tab
10	Double-click on the Security Principal Map node to open it. To create the mapped data, FileNet Deployment Manager examines the half maps for the two environments and matches the values using the labels or shortnames. In this example labels were purposefully assigned by the user when the half maps were originally created and FileNet Deployment Manager does not need to make any default assignments. Examine the mappings to verify the intended pairs of security principals are reflected Hover on information icon to see additional details about the entries.
11	If any modifications were made, use File > Save to save the mapping changes
12	Close the Security Principal Map tab
13	Double-click on the Services Map node to open it. To create the mapped data, FileNet Deployment Manager examines the half maps for the two environments and matches the values using the names. The values for the destination

Step	Action

environment were assigned when the destination half map was created. The service data map for the source-destination pairing cannot be directly modified. If changes are needed, the destination half map would be edited and the source-destination service data map regenerated to reflect the change.

Step	Action
14	Close the Service Map tab

Task 8e – Convert deploy dataset using mapping data

The convert operation uses the export deploy dataset and the data maps to convert the source objects with information specific to the destination environment. During the conversion process, errors can occur when unmapped entries are present in the deploy dataset being converted. An unmapped entry is benign as long as it is not referenced in the exported data.

The mapping performed in the previous task does not appear in the converted deploy dataset until the convert operation is performed. If a mapping is modified, the convert operation must be run again to apply that modification to the converted deploy dataset.

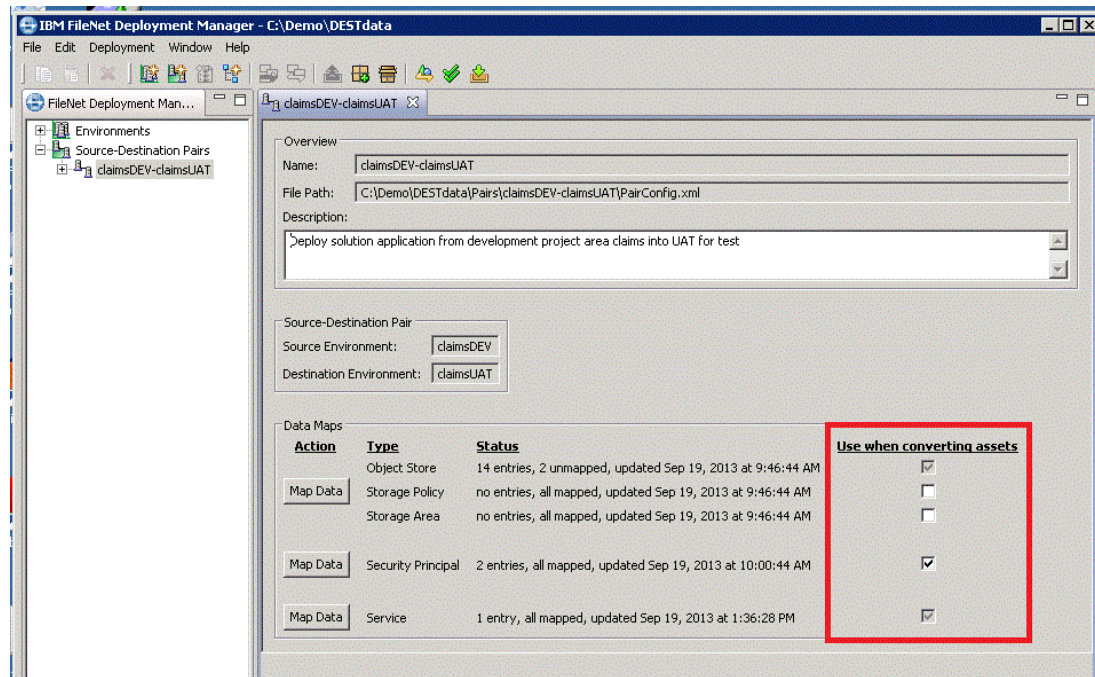| Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Expand the **Source-Destination Pairs** node and double-click on the desired source-destination pair to open it. On the overview tab for the source-destination pair, verify the settings of the check boxes under **Use when converting assets** .
	These check boxes allow the FileNet Deployment Manager user to choose, for a given run of the convert operation, whether or not to apply the data mappings that were created.
	Notice the default settings for the option **Use when converting assets** .
	○ For the object store and service data maps, it is not an option as those

Step	Action

mappings must be applied.
- ○ The option is not set for storage policy and storage area since in this example, those data maps do not exist so using or not using the non-existent data maps is a moot point.
- ○ Although the option to not apply the security principal mappings does exist, typically those mappings are important. They can only be ignored if you are sure that all referenced principals have the same names and SIDs in both environments. This might be the case for some FileNet Deployment Manager use cases. But since solution application migration is typically between different environments, the mappings need to be applied in the conversion process and the selection should stay.

Review the summary information for the number of entries in each map and if any are unmapped. Generally all security principals and service entries need to be mapped if those lists were generated from the exported assets (deploy dataset) as they were in this example. The object stores may not all be mapped as typically only a few are involved in a given assets migration process.

3	Right-click on the desired source-destination pair to bring up the context menu and choose **Convert Assets** .

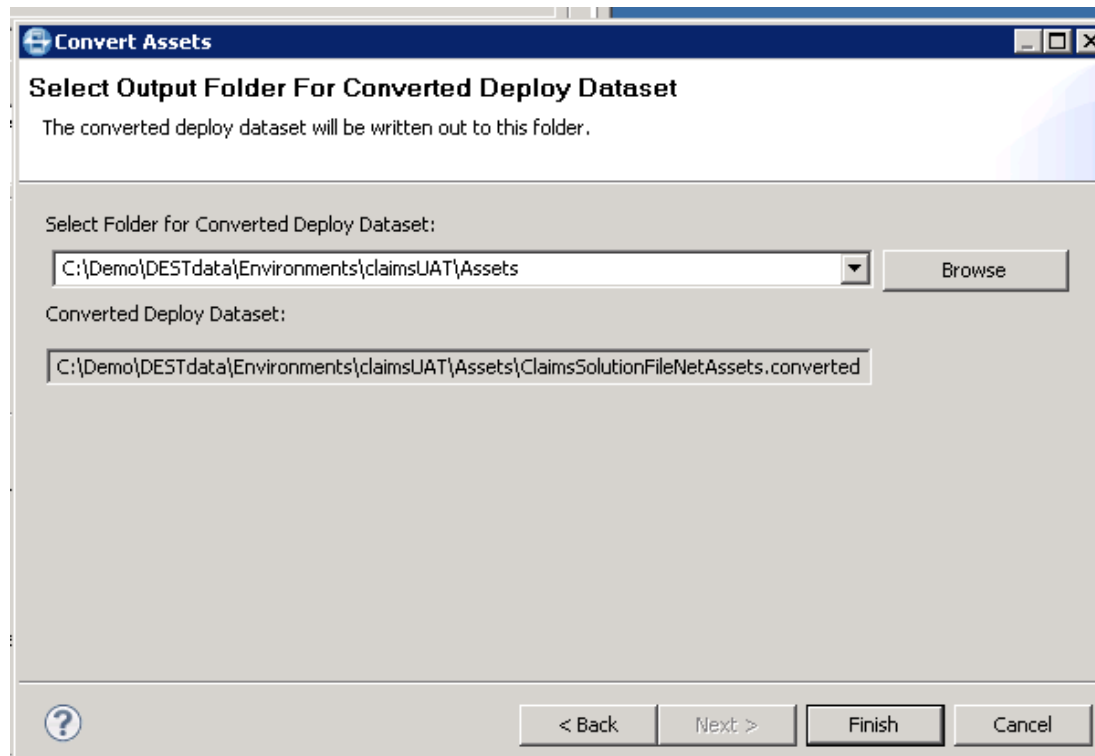| **4**	In the Asset Type Selection dialog, choose **Content Engine Deploy Dataset** .

Step	Action
5	On the **Select Source Deploy Dataset** dialog, browse to and select the file system folder containing the exported data. By default this is under the source environment's **Assets** folder in the deployment tree. In our example that environment was created for the destination system by using information extracted from the deploy package: C:\Demo\DESTdata\Environments\claimsDEV\Assets\ClaimsSolutionFileNetAssets
6	On the **Select Output Folder for Converted Deploy Dataset** dialog, browse to and select the location to place the converted data. The default location is in the Assets folder under the destination environment in the deployment tree since the conversion is relative to mappings for a particular destination environment. The converted data will be placed in a folder named for the deploy dataset and the suffix **.converted** added. Click **Finish** to begin the deploy dataset conversion process. If prompted about the presence of unmapped elements, confirm they are expected and choose **Yes** to continue. If not expected, choose No and return to the edit of the data maps.
7	Verify the process completed successfully. Confirm the number of items processed matches with the number of items originally exported. Click OK to dismiss the completion dialog**.**

Task 8f – Generate change analysis report

Change Impact Analysis is an information-only operation that reports on but does not modify the destination environment. The report includes warnings and errors for potential import issues. It also includes sizing and other data reflecting the change impact analysis.

Even if a converted dataset was used successfully in the past, the possibility exists for it to no longer reflect the ever-changing state of the destination environment. Because Change Impact Analysis connects to the destination environment to analyze the converted deploy dataset, it will catch problems in the dataset resulting from a modified destination environment.

The report will also point out required assets that are not present in the destination system and are missing from the deploy dataset the import operation is dependent upon. The missing assets can:

- Be part of a new export manifest and generated deploy dataset.
- Require modification and reprocessing of the current export manifest to include the missing assets in the same deploy dataset.
- Dictate the installation or configuration of components required prior to importing the FileNet P8 assets.
- Show the need to deploy the solution before importing the other FileNet P8 assets.

Prior to every import operation, the change impact analysis operation should be run on the converted deploy dataset and the analyze report carefully reviewed.

For more details about the change impact analysis operation including descriptions of the sections and information in the generated report, see the "About change impact analysis" topic in the FileNet P8 Information Center.

| Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Expand the **Source-Destination Pairs** node and double-click on the desired source-destination pair to open it.
3	Right-click on the desired source-destination pair to bring up the context menu and choose **Analyze** .
4	In the **Analyze Change Impact , Select source for Change Impact Analysis** dialog, choose **Content Engine Deploy Dataset** . Click Next .
5	On the **Analyze Change Impact on Destination Environment** dialog, use the Browse button to locate and select the deploy dataset just converted. The data is in a folder with the

Step	Action

suffix **.converted** It will be in the **Assets** folder under the destination environment since the conversion was relative to mappings for a particular destination environment.
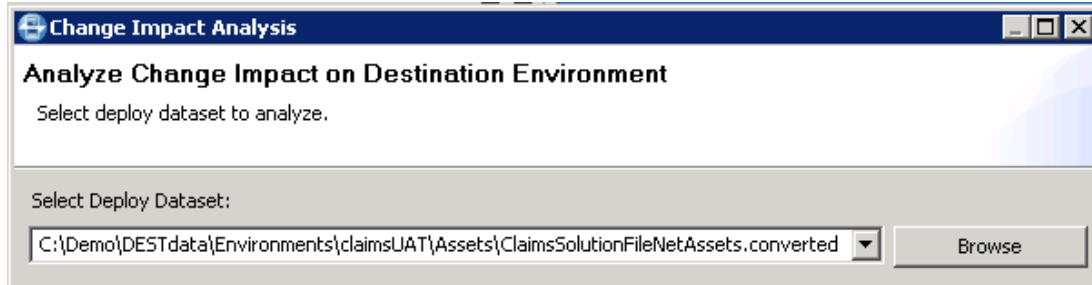
6   On the **Select Import Analysis Options** dialog, the typical choice for the other FileNet P8 assets migrated with a solution application is **Always update the object if it exists at the destination**.

> This choice agrees with the migration model described in Part 1 of this series. The IBM Case Manager solution migration model treats the development environment as the "single source" for the core solution application.. Thus the solution application in its entirety, including the other FileNet P8 assets developed in the project area, should come from the source environment. Later when import is run, this same philosophy is applied.

Click **Next** .
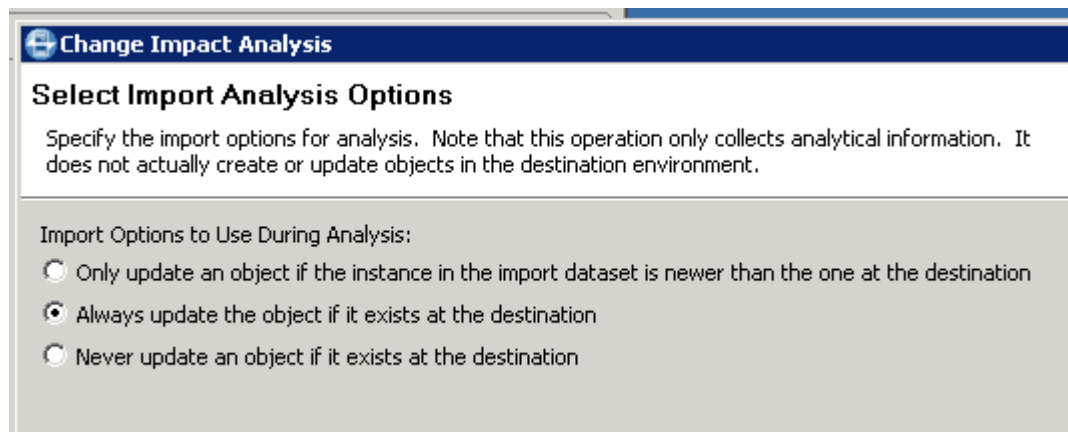
7   On the **Change Impact Report Options** dialog,

- ○ Choose a location for the report to be stored. This report is a good reference if the business requirements include keeping a log/audit of change operations or if the information could be useful for later tracking if issues arise. Designation of a well-known location to archive these reports can assist with both those uses.

- ○ To maximize the available information, and since the deploy datasets used with application migrations are typically small, choosing the option to **Include details**

Step	Action

for all objects in report is recommended.

- ○ Optionally indicate the report should be presented for immediate examination by choosing **View report after processing** .

Click **Finish** to begin the change analysis process.
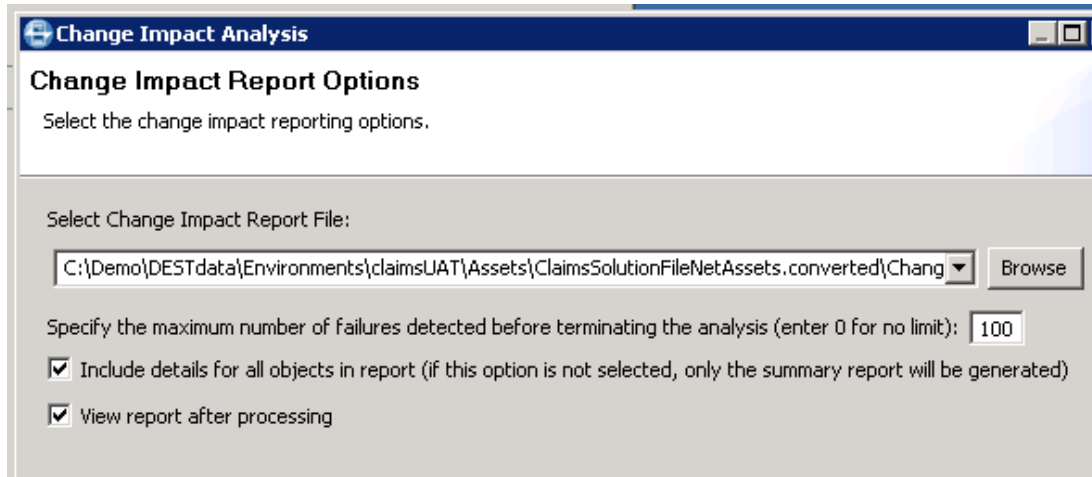
8	Verify the process completed successfully. Confirm the number of items processed matches with the number of items converted.

Click **OK** to dismiss the completion dialog and open the report (if that option was chosen).

Phase 3

Deploy

Deployment order of operation

Recall from the first Solution Deployment Guide article, before any system modification, it is prudent to back-up the portions of the system impacted by the changes. For the best possible backup, activity on the system should be temporarily suspended. This allows a consistent snapshot of all related data to be captured. And following the backup, access to the system should be minimized to avoid further changes that would make the system inconsistent with the backup. For details on backups, see "Backing up your system" in the IBM Case Manager Information Center.

Also before beginning the solution application deployment, a clear picture of the assets and their dependencies should be created. This picture can be included in the solution application documentation created in the *Prepare* phase described in Part 1 of this series. The task below "Import FileNet Content Manager assets" could be needed multiple times both before and after the solution is deployed.

The tasks in this section augment the information presented about the *Deploy* phase in Part 1 of this guide. The tasks are not intended to imply a particular order relative to the deployment of the solution itself. However it should be clear from Part 1 of this guide, the solution application deployment is not complete until at least the solution is deployed and an appropriate security configuration applied.

Assets that might need to be imported before the solution can be deployed include:

- ◦ Content Platform Engine metadata (property templates, document classes, or choice lists) brought into the solution design to be reused.
- ◦ Content Platform Engine Workflow System assets defined outside of IBM Case Manager but incorporated into the solution, such as a workflow system configuration or component queue.

Examples of assets that could be imported after the solution is deployed might include:

- ◦ A stored search that references case properties and is used with a Content List widget.
- ◦ Translated display names and descriptive text for IBM Case Manager deployed class definitions, property templates, or choice lists used to localize a solution. (For more

information about this process, see "*Migrating the translated user interface elements of your case management application*" in the IBM Case Manager 5.2 Information Center.)

This is an example of a dependency between other FileNet P8 assets:

○ A component queue was configured to utilize a code module stored in the object store associated with the workflow system. The code module must be imported before the workflow system configuration with the component queue definition can be imported. If the code module is not present, the component queue import fails with an error:
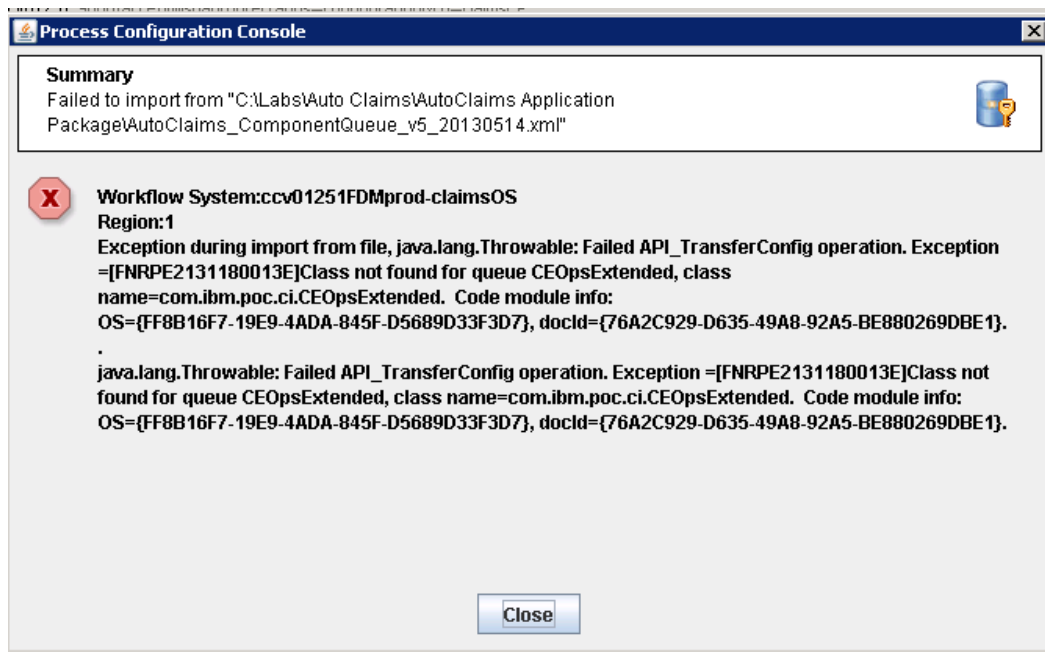
Task 8g – Import FileNet Content Manager assets

FileNet Deployment Manager import options are used to ensure a set of exported assets is consistent when imported:

• **Import Object ID**
Specifies a given object's ID is retained. In the case of a document object, the object ID represents a specific version of a document. This ensures that for an asset stored as a document, like a form template or workflow attachment, the association to a specific document object version is retained. This retention of object ID also important to other FileNet P8 assets where object references occur. The option must always be selected when migrating a solution application.

• **Always Update** vs. **Update if newer**
Because it is important for a solution application deployment to fully replicate the design from the source development environment, use of the Always Update option is

typical. However, if your business needs require that assets modified directly in the target environment take precedence over older changes from the IBM Case Manager development environment, you can select the Update if newer option. The DateLastModified property on the objects in the deploy dataset are compared to the same objects in the target environment to determine which objects are newer.

- **Use Original Create/Update Timestamps and Users**

    Selecting this option imports the values of certain Content Platform Engine system properties which allows verification that the destination system has the version corresponding to that on the source system. For example, to ensure the create and modify times on the destination match those on the source system, select this option. Always select this option if the **Update if newer** option will be used on future updates of the imported assets.

    ⚠️To modify system properties, the FileNet P8 domain user that FileNet Deployment Manager utilizes to connect to the P8 Domain must have the **Modify certain system properties** privilege on the destination object store or the import operation returns errors.

◆ A document object represents a specific version of a document whose content is stored as content elements. A document object's properties can be modified, but the content elements cannot. If the import option "Import Object ID" is specified, and an imported document object already exists in the destination object store with the same ID, the content of the imported document will be unchanged even if the convert operation altered its contents in the converted deploy dataset. If this occurs, take one of the following actions:

- From the destination object store, delete the particular version of the document being imported. This causes the document version to be created, not modified, by the reimport. Note that when you import a document object, it is assigned the next appropriate major and minor version number. The major and minor version numbers from the source system are not retained. Thus if a version is removed from the middle of a version series, when reimported, it will become the newest, and therefore the current, version.

- If the particular document version cannot be deleted prior to import, for example the history of versions in the destination system is important to maintain, manually modify the content using appropriate tools in the destination system after the import completes.

❏

⚠️If you are importing metadata into a clustered or load-balanced set of servers, you need to restrict the FileNet Deployment Manager's server requests to one server. This is necessary to ensure the metadata cache in the server utilized by the import operation is synchronized. The requests can be restricted by performing the import operation when only a single Content

Platform Engine server is available. This is typically during a maintenance window when all but one of the application server instances hosting the Content Platform Engine server can be stopped. Solution application deployments should occur during such a maintenance window to minimize system activity during the *Deploy* phase.

Step	Action
1	If needed, open the FileNet Deployment Manager and desired deployment tree.
2	Expand the **Source-Destination Pairs** node and double-click on the desired source-destination pair to open it.
3	Right-click on the desired source-destination pair to bring up the context menu and choose **Import** .
4	On the Options dialog make the following selections for the most straight-forward import that will be in keeping with the solution application migration model advocated by this deployment guide. For details about these options in the context of an IBM Case Manager solution, see the IBM Case Manager 5.2 Information Center topic "<u>Importing assets by using FileNet Deployment Manager</u>".

Select Storage Policy for Imported Objects typically utilizes the default which allows the configuration in the target object store to be applied: *Use default storage policies ….*

Standard Options:

All these options may be selected or deselected except for Import Object ID which must be selected. Following are suggestions only.

- Import Security Permissions: Optionally deselect
  Causes default security configured in the target object store to be inherited by the imported objects.
- Import Owner: Optionally deselect
  Results in the user account utilized by FileNet Deployment Manager to connect to the Content Platform Engine to become the owner of newly created objects.
- Import Object ID: <u>Select</u>
- Use original create/update timestamps and users: Optionally select
  If you select this option you must ensure the user account FileNet Deployment Manager used to connect to the FileNet P8 domain also has the **Modify certain system properties** privilege on the target object store
- Import Retention: Optionally deselect
  Assets used in application definitions are not typically managed using content retention policies.
- Transfer workflows after import : Optionally select
  If an external workflow definition was included in the deploy dataset, this option might be selected.

Update Options

- Always Update: Select

Step	Action
	Create Options • Create if new : Select Click **Finish** skipping the advanced option to utilize a pre-import script starting the import process.
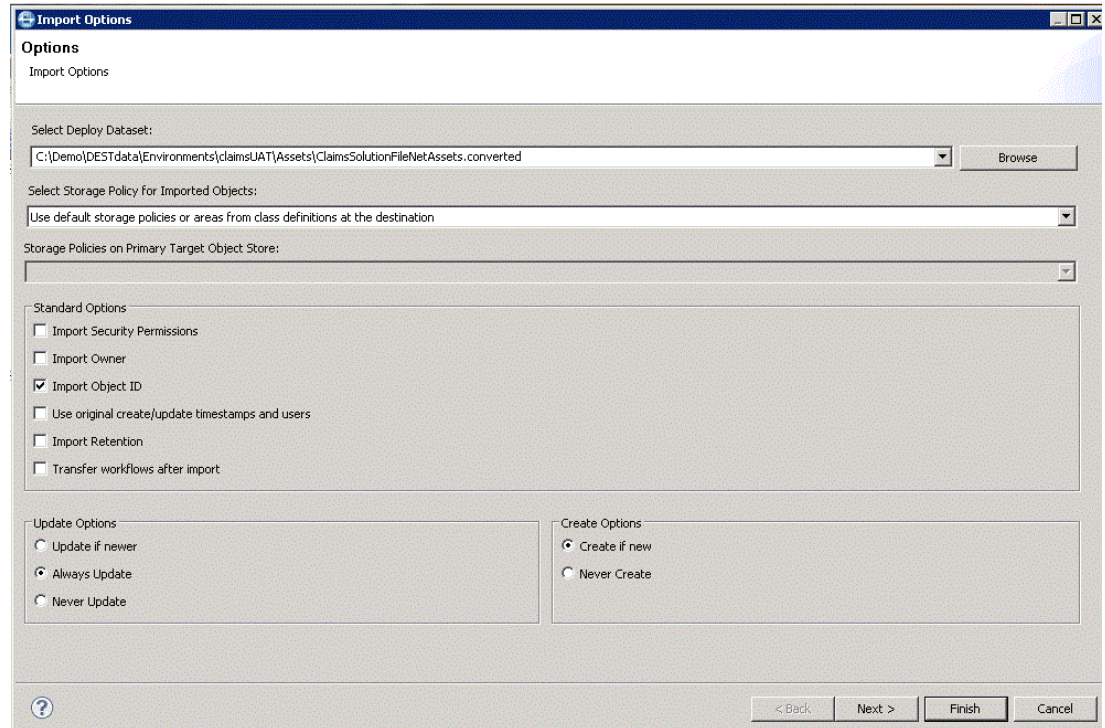
|	
5	Verify the process completed successfully. Confirm the number of items processed matches with the number of items converted. Click **OK** to dismiss the completion dialog.
6	If all deploy packages associated with this solution application deployment that will be imported at this time have been processed, exit FileNet Deployment Manager.
7	Use ACCE to open the target object store to confirm the assets were imported as expected. The solution's deployment instructions should include a description of the assets along with their expected location in the destination system. In this example the FileNet P8 assets include: The folder *CodeModules_WF* with its contained code module. The folder *forms* with is contained form template.

Task 8h – Import FileNet workflow system assets

Import the required Content Platform Engine Workflow System assets into the target environment where the solution application will be deployed. Required Workflow System assets are assets that are created with the Process Configuration Console or Process Designer, not assets that are created in Case Manager Builder.

In the example solution, a component queue is used to make a call into the Content Platform Engine using a custom application providing functionality beyond that provided by the CE_Operations queue. That component queue definition was exported in the above task "Task - Export FileNet Workflow System configuration".

Step	Action
1	Log into the IBM Administration Console for Content Platform Engine (ACCE) using the URL http://<CPEserver_host:CPEserver_port>/acce
2	Open the object store used as the target object store for the IBM Case Manager target environment the solution application will be deployed to.
3	The Process Configuration Console can be found for a given object store on the **Administrative** node, **Workflow System > Actions > Configure Workflow Settings**
4	After the Process Configuration Console java applet is launched, from the Workflow Systems listed, select the connection point for the IBM Case Manager target environment where the solution application will be deployed. With the Action menu, use the Connect operation and connect to the desired workflow system.

Step	Action
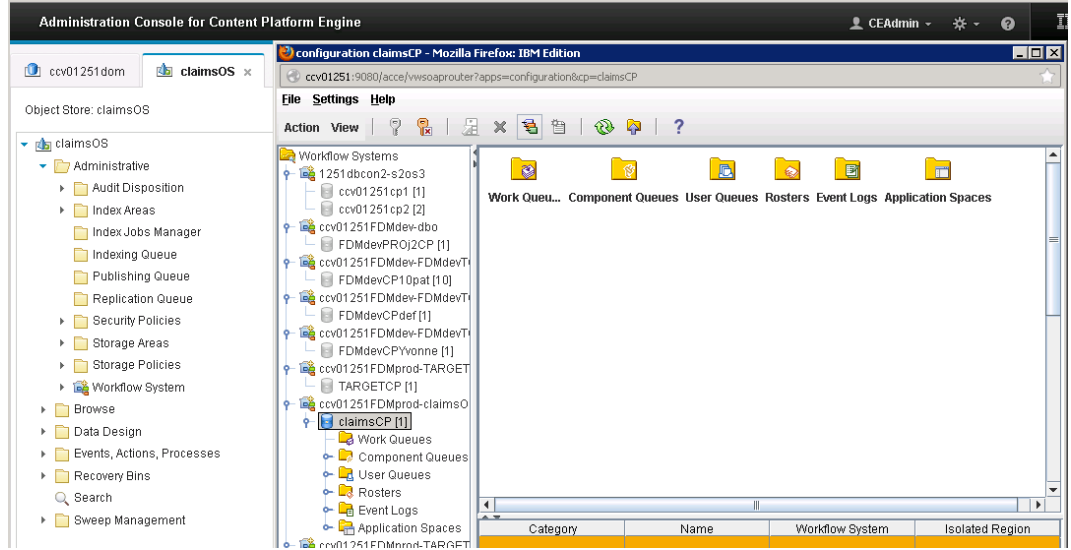
| 5	With the Action menu, use the **Import from XML** file operation to launch the import wizard.

6	On the **Import Configuration** dialog,

Browse to the XML file previously created when the configuration queue definition was exported from the source environment (project area).

Choose **Import Type** of **Merge**

> For a solution redeployment, or if multiple solutions share the same target environment, the merge option preserves any existing properties in the destination target environment and adds new properties from the development environment project area.

Click **Import** to start the import process.

Step	Action
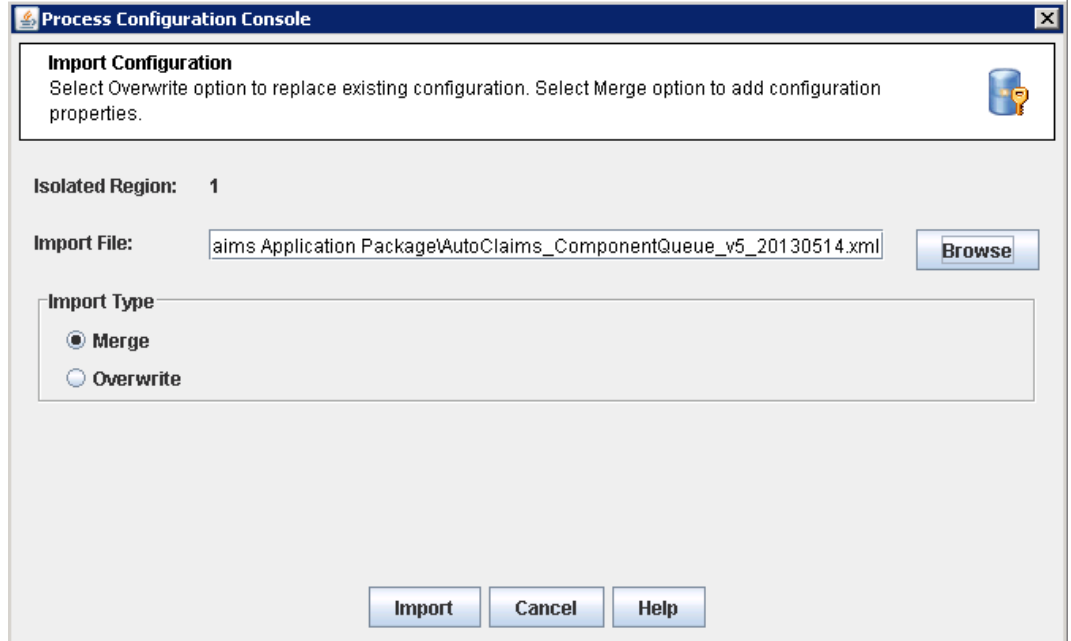
7	Click **Yes** to dismiss the dialog warning that these changes are immediately deployed to the run-time system.
8	Wait for successful completion. Use the Details button to see a summary of the modifications made to the workflow system. Use the **Close** button to dismiss the dialog when complete.
9	Use **File > Exit** to close the Process Configuration Console .

Deploy solution

As described in part 1 of this guide, the additional tasks to deploy the solution would be completed at this time before moving onto system configuration. Also, if needed, the tasks described in this article to import additional FileNet Content Manager assets might be used again after the solution is deployed if those assets depend on the solution deployment.

For detailed steps on how to deploy a solution, please see the developerWorks article "IBM Case Manager 5.2 Solution Deployment Guide Part 1: Basic Solution Deployment and Migration".

Phase 4

Configure

General system configuration

After a solution is migrated and deployed, depending on the features of the solution, additional system configuration steps might be required. When a solution is deployed to a system for the first time, steps beyond the migrate and deploy may be required to configure it into the new environment. When a solution is redeployed, system configuration information may be overwritten during the redeployment process and may need re-specification. However most configuration steps should not need repeating

For objects managed in the FileNet Content Platform Engine, a majority of the configuration is migrated when the object is deployed using FileNet Deployment Manager. However some elements that might need additional configuration after deployment include:

- Component queue JAAS credentials (export/import tools typically do not manage passwords)

- Component Manager configuration and start (legacy component queues)

- JMS JNDI specifications for a JMS queue

- Supporting libraries not included in code modules migrated with the solution application but referenced by action handlers or component queues used with the solution

In the example, the component queue configuration must be modified to have the proper JAAS credentials.
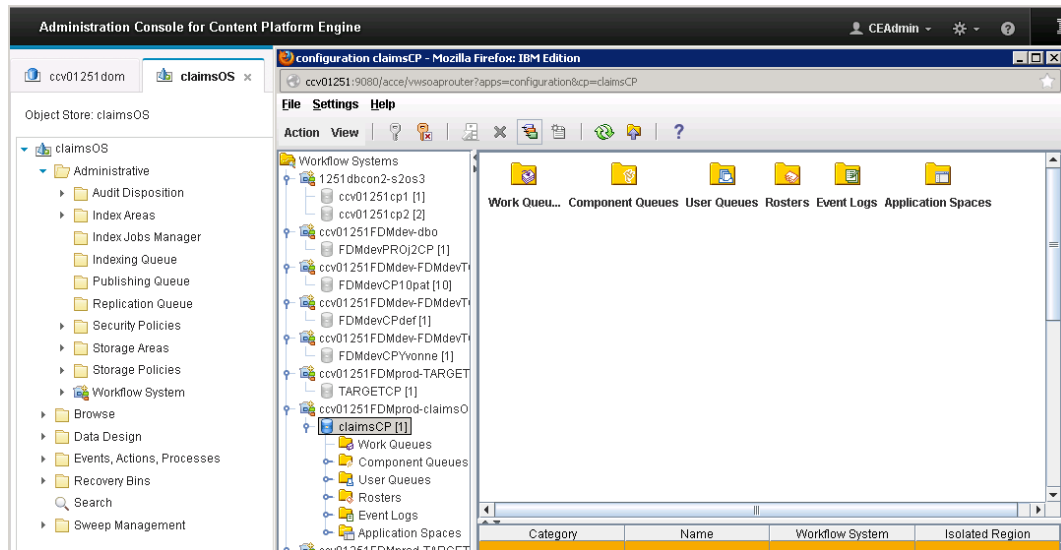
Task 9 – Configure Component Queue

For a component queue, the **Adapter** and **Operations** tabs contain information brought to the destination system with the export/import of the queue definition using the Process

Configuration Console. Some properties may need modification to reflect the destination system. For example, typically the JAAS credentials must be updated to reflect the correct user account for processing the component queue on the target environment.

For more information about the Java adaptor and its properties, see "Creating a component queue" in the FileNet P8 Information Center.

| Step	Action
1	Log into the IBM Administration Console for Content Platform Engine (ACCE) using the URL http://<CPEserver_host:CPEserver_port>/acce
2	Open the object store used as the target object store for the target environment the solution application will be migrated to.
3	The Process Configuration Console can be found for a given object store on the **Administrative** node, **Workflow System > Actions > Configure Workflow Settings**
4	After the Process Configuration Console java applet is launched, from the Workflow Systems listed, select the connection point for the project area where the solution application resides. With the Action menu, use the Connect operation and connect to the desired workflow system.
5	Expand the Component Queues node and double-click on the CEOpsExtended component queue to access its properties.

Step	Action
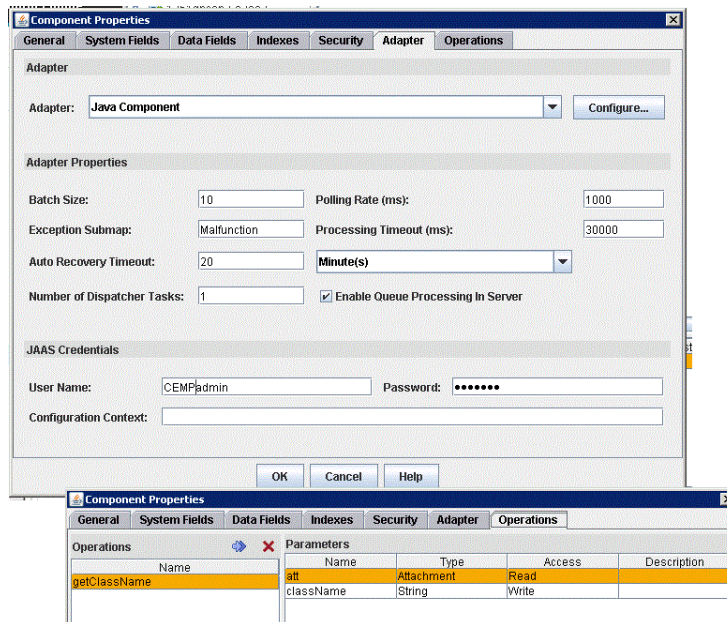
6	If modifications are made on the **Component Properties** dialog, use the OK button to save them temporarily.
7	Use the Commit operation on the main Process Configuration Console dialog to apply these changes to the isolated region for the target environment.
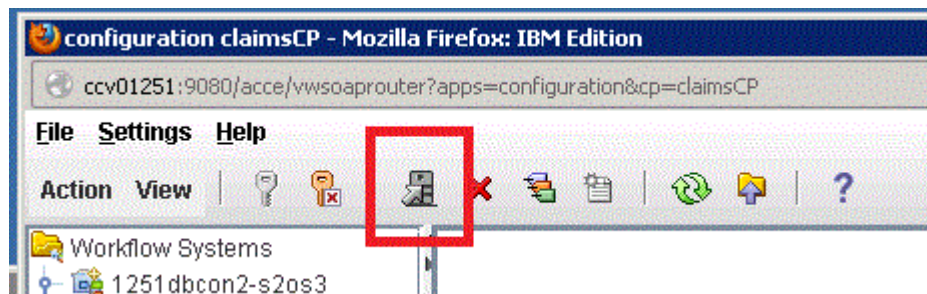
8	On the **Commit changes in Workflow System** dialog, review the information about the changes that will be applied.
	Click **Continue** to start the commit changes process.
	Wait for successful completion.
	Use the **Close** button to dismiss the dialog when complete.
9	Use **File > Exit** to close the Process Configuration Console .

Appendices

Appendices

Case Manager Tools to FileNet Deployment Manager Terms

FileNet Deployment Manager Term	IBM Case Manager Term
Source environment	Project area (DEV), Target Environment (UAT/PROD)
Destination environment	Target environment
Source-Destination pair	Project area >> test/production target environment.
Export	Migrate (export tasks)
Deploy (import)	Deploy
Application	Solution application
Security principals	Users and groups
Service data	Any environment specific data embedded in an asset that can be mapped and converted to a target environment value during deploy/import
ID or GUID (unique identifier for a Content Platform Engine object)	Object identifier, ObjectID, or GUID

Document Conventions

The following documentation conventions are used to assist in performing a task:

Convention	Explanation
Bold	Words that appear in boldface represent menu options, buttons, icons, or any object you click to cause the software to perform a task. This typeface also represents anything that you must type or enter.
italics	In addition to book or topic titles, italics are used to emphasize certain words, especially new terms when they are first introduced.

Note	Signifies information that emphasizes or supplements important points of the main text.
Important	Signifies information essential to the completion of a task. You can disregard information in a note and still complete a task, but you should not disregard an important note.
Caution	This alerts you to follow a recommended procedure carefully. Failure to do so may result in installation or configuration problems or other preventable conditions.
Tip	This helps you understand the benefits and capabilities of a feature or function. It may also provide an overview of an alternate method. A tip is not essential to the basic understanding of the text.
	This symbol indicates the end of a note, caution, or tip.

References and Acknowledgements

IBM FileNet P8 Version 5.2 Information Center

http://pic.dhe.ibm.com/infocenter/p8docs/v5r2m0/index.jsp

IBM Case Manager Version 5.2 Information Center

http://pic.dhe.ibm.com/infocenter/casemgmt/v5r2m0/index.jsp

IBM FileNet Content Manager Implementation Best Practices and Recommendations

http://www.redbooks.ibm.com/abstracts/sg247547.html

Advanced Case Management with IBM Case Manager

http://www.redbooks.ibm.com/abstracts/sg247929.html

IBM Case Manager 5.2 Solution Deployment Guide Part 1: Basic Solution Deployment and Migration

https://www.ibm.com/developerworks/community/groups/service/html/communityview?communityUuid=e8206aad-10e2-4c49-b00c-fee572815374#fullpageWidgetId=Wf2c4e43b120c_4ac7_80ae_2695b8e6d46d&file=3cdde542-efe9-49c8-bdc0-32de7683cad5

Material used in the examples for this guide adapted from:

- Sample CEOpsExtended component queue – written by Robert M. Hoida, ECM Consultant

- IBM DeveloperWorks article by Jeff Douglas and Jos Olminkhof:

  Use industry templates for advanced case management, Part 2
  https://www.ibm.com/developerworks/data/tutorials/dm-1101casemanagertemplates2/

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